94th Congress }
2d Session }

COMMITTEE PRINT

PROGRAM EXPERIMENTATION
BRANCH LIBRARY

SUBCOMMITTEE ON HEALTH

OF THE

COMMITTEE ON WAYS AND MEANS
U.S. HOUSE OF REPRESENTATIVES

ORDS Research Ref. Center

MEDICARE-MEDICAID REIMBURSEMENT POLICIES

ORD [illegible]
RESO[illegible]

Social Security Studies Final Report

SUBMITTED BY THE

Institute of Medicine

OF THE

National Academy of Sciences

MARCH 1, 1976

Note: This document has been printed for information purposes only, so as to make it generally available. It is not to be construed as the statement or position of the Committee on Ways and Means or any Member thereof.

U.S. GOVERNMENT PRINTING OFFICE
-568 O WASHINGTON : 1976 WMCP: 94-125

or sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price $3.80

R
728.5
.I57
1976

Information
Resource
Center

LAW 1330

COMMITTEE ON WAYS AND MEANS

AL ULLMAN, Oregon, *Chairman*

WILBUR D. MILLS, Arkansas
JAMES A. BURKE, Massachusetts
DAN ROSTENKOWSKI, Illinois
PHIL M. LANDRUM, Georgia
CHARLES A. VANIK, Ohio
OMAR BURLESON, Texas
JAMES C. CORMAN, California
WILLIAM J. GREEN, Pennsylvania
SAM M. GIBBONS, Florida
JOE D. WAGGONNER, Jr., Louisiana
JOSEPH E. KARTH, Minnesota
OTIS G. PIKE, New York
RICHARD F. VANDER VEEN, Michigan
J. J. PICKLE, Texas
HENRY HELSTOSKI, New Jersey
CHARLES B. RANGEL, New York
WILLIAM R. COTTER, Connecticut
FORTNEY H. (PETE) STARK, California
JAMES R. JONES, Oklahoma
ANDY JACOBS, Jr., Indiana
ABNER J. MIKVA, Illinois
MARTHA KEYS, Kansas
JOSEPH L. FISHER, Virginia
HAROLD FORD, Tennessee

HERMAN T. SCHNEEBELI, Pennsylvania
BARBER B. CONABLE, Jr., New York
JOHN J. DUNCAN, Tennessee
DONALD D. CLANCY, Ohio
BILL ARCHER, Texas
GUY VANDER JAGT, Michigan
WILLIAM A. STEIGER, Wisconsin
PHILIP M. CRANE, Illinois
BILL FRENZEL, Minnesota
JAMES G. MARTIN, North Carolina
L. A. (SKIP) BAFALIS, Florida
WILLIAM M. KETCHUM, California

JOHN M. MARTIN, Jr., *Chief Counsel*
J. P. BAKER, *Assistant Chief Counsel*
JOHN K. MEAGHER, *Minority Counsel*

SUBCOMMITTEE ON HEALTH

DAN ROSTENKOWSKI, Illinois, *Chairman*

JAMES C. CORMAN, California
OTIS G. PIKE, New York
CHARLES A. VANIK, Ohio
OMAR BURLESON, Texas
JOE D. WAGGONNER, Jr., Louisiana
WILLIAM R. COTTER, Connecticut
MARTHA KEYS, Kansas

JOHN J. DUNCAN, Tennessee
PHILIP M. CRANE, Illinois
JAMES G. MARTIN, North Carolina
DONALD D. CLANCY, Ohio

94th Congress/2nd Session/1976

Library
2-07-13
500 Security Blvd.
Baltimore, Maryland 21244

CONTENTS

Page
Foreword ---- XIII
Acknowledgments ---- XIV
Preface ---- XV

PART I—FINDINGS AND RECOMMENDATIONS

Summary ---- 1
  Teaching hospitals ---- 2
    Recommendations ---- 5
  Distribution of physicians by specialty and geography ---- 8
    Recommendations ---- 9
  Foreign medical graduates ---- 11
    Recommendation ---- 12
Chapter 1. Payment for teaching physician services in teaching hospitals ---- 13
  Government policies for payment of teaching physicians ---- 14
  Findings from the field studies ---- 20
  Evaluation of payment methods and their effect on sample institutions ---- 29
  Recommendations ---- 38
Chapter 2. Changing the specialty and geographic distribution of physicians ---- 47
  Defining appropriate physician distribution for the United States ---- 48
  Determining goals for specialty distribution ---- 51
  Modeling physician specialty distributions ---- 52
  Strategies for changing physician distribution in the United States ---- 55
  Strategies for increasing the proportion of contact physicians ---- 57
  Strategies to change the geographic distribution of contact physicians ---- 64
  Conclusion ---- 69
Chapter 3. Foreign medical graduates ---- 73
  Other study groups and legislative proposals ---- 73
  Foreign medical graduates in graduate medical education ---- 76
  Distribution of foreign medical graduates in house officer positions ---- 79

PART II—RESOURCE PAPERS

Chapter 1. Teaching hospitals ---- 91
  Sample selection ---- 91
  Education association ---- 94
  Ownership ---- 95
  Teaching hospital revenues and expenditures ---- 97
  Findings ---- 100
Chapter 2. Teaching physicians ---- 101
  Who is a teaching physician ---- 101
  Teaching physician activities ---- 102
  Teaching physician compensation arrangements ---- 108
  Compensation categories ---- 111
  Sources of teaching physician compensation ---- 113
  Sources and uses of professional fee income ---- 113
  Professional fees as a source of institutional support ---- 116
  Practice plans ---- 119
  Findings ---- 130

Page
Chapter 3. Organization of patient care 133
  Patient classification 134
  Hospital patient care types 135
  Patient care in teaching hospitals 139
  Findings 147
Chapter 4. Graduate medical education 151
  History and growth of graduate medical education programs 151
  Decisions in graduate medical education 158
  Financing graduate medical education 161
  Findings 165
Chapter 5. Medicare intermediaries and carriers: Their responsibilities in teaching hospitals 169
  Intermediary responsibilities 170
  Carrier responsibilities 170
  Approaches to improve IL 372 implementation 174
  Findings 175
Chapter 6. Analysis of methods of payment 177
  Methods of payment for teaching physician services 177
  Influences on the effect of changes in method of payment 179
  Structural effects of changes in method of payment 183
  Financial effects of charge and cost payment methods 192
  Evaluation of methods of payment 196
  Summary 205
  Appendix A. Elements of the methods of payment 207
  Appendix B. Annotations of methods of payment 213
Chapter 7. Improving physician specialty distribution in the United States 229
  The geographic distribution of physicians 232
  Defining goals 234
  Findings 241
Chapter 8. Modeling physician specialty distributions 247
  The modeling process 248
  Range of opinion on optimal specialty distribution 249
  Contact physicians 250
  Physician specialties 253
  Other influences on physician distribution 261
  Adequacy of current data for development of physician manpower policy 265
  Findings 265
Chapter 9. Physician choice of specialty and geographic location: A survey of the literature 269
  Determinants of specialty choice 269
  Influences on physician choice of geographic location 279
  Findings 293
Chapter 10. Physician choice of specialty and geographic location: An analysis of third party payment levels 307
  Proportion of medicare and medicaid in physician incomes 307
  Medicare and medicaid payment practices 310
  A comparison of prevailing charges 311
  Prevailing charge levels and physician density 320
  Influence of medicare payments on assignment rates 323
  Comparative rates of inflation of medicare allowed charges 324
  Findings 327
  Appendix 331
Chapter 11. Foreign medical graduates in graduate medical education 341
  Entering the United States: Immigration and educational exchange 341
  Entering the medical care system: Graduate medical education and licensure 344
  Distribution of foreign medical graduates among specialties 348
  Distribution of foreign medical graduates among institutions 350
  Geographic distribution of foreign medical graduates 350
  Distribution of foreign medical graduates by national origin 352
  Foreign medical graduates in house officer positions 353
  Selection of house officers 364
  Selection of training positions 366
  Findings 368
Glossary 371
Membership of advisory committees 378

INSTITUTE OF MEDICINE

MEDICARE-MEDICAID REIMBURSEMENT POLICIES

Social Security Studies

Final Report

March 1976

Supported by U.S. Department of Health, Education, and Welfare Contract No. SSA-PMB-74-250

National Academy of Sciences
Washington, D.C.

NOTICE

The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the Councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the Committee responsible for the report were chosen for their special competences and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

The Institute of Medicine was chartered in 1970 by the National Academy of Sciences to enlist distinguished members of medical and other professions for the examination of policy matters pertaining to the health of the public. In this, the Institute acts under both the Academy's 1863 Congressional charter responsibility to be an advisor to the Federal Government, and its own initiative in identifying issues of medical care, research, and education.

2101 Constitution Avenue, N.W., Washington, D.C. 20418

Area 202 389-6891

IOM Publication 76-01

NATIONAL ACADEMY OF SCIENCES
2101 CONSTITUTION AVENUE
WASHINGTON, D. C. 20418

INSTITUTE OF MEDICINE
OFFICE OF THE PRESIDENT

March 1, 1976

The Honorable Russell B. Long
Chairman
Committee on Finance
United States Senate
Washington, D.C. 20501

Dear Mr. Chairman:

I am pleased to present to the Committee on Finance Parts I and II of the final report of the studies conducted by the Institute of Medicine, National Academy of Sciences, pursuant to Section 15(c) of the Social Security Act Amendments of 1973 (P.L. 93-233). These provisions requested the Secretary of Health, Education, and Welfare to arrange for studies concerning: (A) appropriate and equitable methods of reimbursement for physician services under Titles XVIII and XIX of the Social Security Act in hospitals which have a teaching program approved as specified in section 1861(b)(6) of such Act, (B) the extent to which funds expended under such titles are supporting the training of medical specialties which are in excess supply, (C) how such funds could be expended in ways which support more rational distribution of physician manpower both geographically and by specialty, (D) the extent to which such funds support or encourage teaching programs which tend to disproportionately attract foreign medical graduates, and (E) the existing and appropriate role that part of such funds which are expended to meet in whole or in part the cost of salaries of interns and residents in teaching programs approved as specified in section 1861(b)(6) of such Act.

Part I of the report contains the summary of findings, conclusions, and recommendations. Part II contains detailed data and findings on the organization and financing of teaching hospital activities and compensation of teaching physicians, graduate medical education, payment options and their impacts, specialty and geographic distribution of physicians, and foreign medical graduates.

Part III of the report, which is a technical description of the methodology used to collect and analyze the data, will be transmitted in May.

We shall be pleased to discuss this report in greater detail with the members and staff of your committee.

Sincerely yours,

David A. Hamburg

David A. Hamburg, M.D.
President

Enclosure

NATIONAL ACADEMY OF SCIENCES
2101 CONSTITUTION AVENUE
WASHINGTON, D. C. 20418

INSTITUTE OF MEDICINE
OFFICE OF THE PRESIDENT

March 1, 1976

The Honorable Al Ullman
Chairman
Committee on Ways and Means
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am pleased to present to the Committee on Ways and Means Parts I and II of the final report of the studies conducted by the Institute of Medicine, National Academy of Sciences, pursuant to Section 15(c) of the Social Security Act Amendments of 1973 (P.L. 93-233). These provisions requested the Secretary of Health, Education, and Welfare to arrange for studies concerning: (A) appropriate and equitable methods of reimbursement for physician services under Titles XVIII and XIX of the Social Security Act in hospitals which have a teaching program approved as specified in section 1861(b)(6) of such Act, (B) the extent to which funds expended under such titles are supporting the training of medical specialties which are in excess supply, (C) how such funds could be expended in ways which support more rational distribution of physician manpower both geographically and by specialty, (D) the extent to which such funds support or encourage teaching programs which tend to disproportionately attract foreign medical graduates, and (E) the existing and appropriate role that part of such funds which are expended to meet in whole or in part the cost of salaries of interns and residents in teaching programs approved as specified in section 1861(b)(6) of such Act.

Part I of the report contains the summary of findings, conclusions, and recommendations. Part II contains detailed data and findings on the organization and financing of teaching hospital activities and compensation of teaching physicians, graduate medical education, payment options and their impacts, specialty and geographic distribution of physicians, and foreign medical graduates.

Part III of the report, which is a technical description of the methodology used to collect and analyze the data, will be transmitted in May.

We shall be pleased to discuss this report in greater detail with the members and staff of your committee.

Sincerely yours,

David A. Hamburg

David A. Hamburg, M.D.
President

Enclosure

NATIONAL ACADEMY OF SCIENCES
2101 CONSTITUTION AVENUE
WASHINGTON, D. C. 20418

March 1, 1976

INSTITUTE OF MEDICINE
OFFICE OF THE PRESIDENT

The Honorable Harley O. Staggers
Chairman
Committee on Interstate and Foreign
Foreign Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

I am pleased to present to the Committee on Interstate and Foreign Commerce Parts I and II of the final report of the studies conducted by the Institute of Medicine, National Academy of Sciences, pursuant to Section 15(c) of the Social Security Act Amendments of 1973 (P.L. 93-233). These provisions requested the Secretary of Health, Education, and Welfare to arrange for studies concerning: (A) appropriate and equitable methods of reimbursement for physician services under Titles XVIII and XIX of the Social Security Act in hospitals which have a teaching program approved as specified in section 1861(b)(6) of such Act, (B) the extent to which funds expended under such titles are supporting the training of medical specialties which are in excess supply, (C) how such funds could be expended in ways which support more rational distribution of physician manpower both geographically and by specialty, (D) the extent to which such funds support or encourage teaching programs which tend to disproportionately attract foreign medical graduates, and (E) the existing and appropriate role that part of such funds which are expended to meet in whole or in part the cost of salaries of interns and residents in teaching programs approved as specified in section 1861(b)(6) of such Act.

Part I of the report contains the summary of findings, conclusions, and recommendations. Part II contains detailed data and findings on the organization and financing of teaching hospital activities and compensation of teaching physicians, graduate medical education, payment options and their impacts, specialty and geographic distribution of physicians, and foreign medical graduates.

Part III of the report, which is a technical description of the methodology used to collect and analyze the data, will be transmitted in May.

We shall be pleased to discuss this report in greater detail with the members and staff of your committee.

Sincerely yours,

David A Hamburg

David A. Hamburg, M.D.
President

Enclosure

NATIONAL ACADEMY OF SCIENCES
2101 CONSTITUTION AVENUE
WASHINGTON, D. C. 20418

INSTITUTE OF MEDICINE
OFFICE OF THE PRESIDENT

March 1, 1976

The Honorable David Mathews
Secretary of Health, Education,
and Welfare
Washington, D.C. 20201

My dear Mr. Secretary:

I am pleased to present to the Department of Health, Education, and Welfare Parts I and II of the final report of the studies conducted by the Institute of Medicine, National Academy of Sciences, pursuant to Section 15(c) of the Social Security Act Amendments of 1973 (P.L. 93-233). These provisions requested the Secretary of Health, Education, and Welfare to arrange for studies concerning: (A) appropriate and equitable methods of reimbursement for physician services under Titles XVIII and XIX of the Social Security Act in hospitals which have a teaching program approved as specified in section 1861(b)(6) of such Act, (B) the extent to which funds expended under such titles are supporting the training of medical specialties which are in excess supply, (C) how such funds could be expended in ways which support more rational distribution of physician manpower both geographically and by specialty, (D) the extent to which such funds support or encourage teaching programs which tend to disproportionately attract foreign medical graduates, and (E) the existing and appropriate role that part of such funds which are expended to meet in whole or in part the cost of salaries of interns and residents in teaching programs approved as specified in section 1861(b)(6) of such Act.

Part I of the report contains the summary of findings, conclusions, and recommendations. Part II contains detailed data and findings on the organization and financing of teaching hospital activities and compensation of teaching physicians, graduate medical education, payment options and their impacts, specialty and geographic distribution of physicians, and foreign medical graduates.

Part III of the report, which is a technical description of the methodology used to collect and analyze the data, will be transmitted in May.

We shall be pleased to discuss this report in greater detail with you and your staff.

Sincerely yours,

David A. Hamburg

David A. Hamburg, M.D.
President

Enclosure

NATIONAL ACADEMY OF SCIENCES
2101 CONSTITUTION AVENUE
WASHINGTON, D. C. 20418

INSTITUTE OF MEDICINE
OFFICE OF THE PRESIDENT

March 1, 1976

The Honorable James B. Cardwell
Commissioner of Social Security
Baltimore, Maryland 21235

Dear Mr. Cardwell:

I am pleased to present to the Social Security Administration Parts I and II of the final report of the studies conducted by the Institute of Medicine, National Academy of Sciences, pursuant to Section 15(c) of the Social Security Act Amendments of 1973 (P.L. 93-233). These provisions requested the Secretary of Health, Education, and Welfare to arrange for studies concerning: (A) appropriate and equitable methods of reimbursement for physician services under Titles XVIII and XIX of the Social Security Act in hospitals which have a teaching program approved as specified in section 1861(b)(6) of such Act, (B) the extent to which funds expended under such titles are supporting the training of medical specialties which are in excess supply, (C) how such funds could be expended in ways which support more rational distribution of physician manpower both geographically and by specialty, (D) the extent to which such funds support or encourage teaching programs which tend to disproportionately attract foreign medical graduates, and (E) the existing and appropriate role that part of such funds which are expended to meet in whole or in part the cost of salaries of interns and residents in teaching programs approved as specified in section 1861(b)(6) of such Act.

Part I of the report contains the summary of findings, conclusions, and recommendations. Part II contains detailed data and findings on the organization and financing of teaching hospital activities and compensation of teaching physicians, graduate medical education, payment options and their impacts, specialty and geographic distribution of physicians, and foreign medical graduates.

Part III of the report, which is a technical description of the methodology used to collect and analyze the data, will be transmitted in May.

We shall be pleased to discuss this report in greater detail with you and your staff.

Sincerely yours,

David A. Hamburg.

David A. Hamburg, M.D.
President

Enclosure

FOREWORD

In 1971 the Congress called on the Institute of Medicine, of the National Academy of Sciences, to conduct a study of the costs of education in the health professions. Following the successful completion of that study, under the distinguished chairmanship of Dr. Julius Richmond, the Congress in 1973 called on the Institute to conduct a study of the payment of physicians in teaching hospitals under Medicare and Medicaid and the effects of Medicare and Medicaid reimbursement on the specialty and geographic distribution of physicians and the training of foreign medical graduates.

This report is the response to that request. It has been prepared under the guidance of a steering committee of physicians, hospital administrators, and other knowledgeable individuals appointed by the President and Council of the Institute.

As Chairman of the Steering Committee, I must first express my gratitude to my fellow members who have been generous in their contributions of time and energy, wise in their counsels, and tolerant of each other's opinions. I am equally grateful to the members of our three advisory committees who have also given generously of their time and advice.

The study staff, under the direction of Ruth Hanft, who also directed the Institute's health care educational cost study, has been heroic in its devotion, stoic in its acceptance of extraordinary difficulties along the way, and socratic in its dialogue with the steering committee.

Lastly, I must express my gratitude, for myself and for my colleagues on the Committee, to the Social Security Administration for its cooperation throughout the study, and to the Congress for making possible this further inquiry looking to a better structure for teaching, learning, and patient care. We trust that the results of the study will merit their confidence.

Adam Yarmolinsky, LL.B.
Chairman

ACKNOWLEDGEMENTS

The study described in this report was broad and complex in scope and examined several difficult and interrelated issues that affect medical schools, hospitals, the beneficiaries of Medicare and Medicaid, health care consumers, physicians, and government program administrators.

To assure that all views on the issues were considered and that the widest expertise was drawn upon, many individuals were consulted; those who assisted in this study are too numerous for adequate individual acknowledgement.

The Institute of Medicine's study staff wishes first to thank the steering committee, whose members were always available to the staff for policy guidance and advice. They devoted many long hours to the study, reviewing the study design, the draft reports, and formulating the recommendations of the study.

Without the fullest cooperation of the hospitals that participated in the field studies, the data could not have been obtained. Faculty, administrators, house staff, and financial officers spent many hours in interviews with our staff and completing the questionnaires, as did the Medicare intermediaries and carriers. The professional associations which represent the medical and osteopathic schools and the teaching hospitals cooperated fully by urging their affiliates to participate.

Invaluable advice from the three advisory panels -- on teaching hospitals and physicians, specialty and geographic distribution, and foreign medical graduates -- contributed to an understanding of the issues in graduate medical education and patient care.

Special mention is due the participants in the modeling seminars who gave their time and expertise to the difficult issues of optimal specialty and geographic distribution.

The study group is appreciative of the efforts of the Department of Health, Education, and Welfare, the Social Security Administration, the Social and Rehabilitation Services, and the Health Resources Administration for providing background information, assisting in the design of data instruments, and in stimulating the staff and the committee to seek alternative approaches to the issues.

Special thanks is due the staff of the Commission on Human Resources of the National Academy of Sciences for their outstanding assistance in data processing and supporting services.

Most important were the efforts of staff members who overcame all conceivable and inconceivable barriers in meeting a very tight deadline.

Ruth S. Hanft
Study Director

PREFACE

In 1973, congressional concern about the conditions for payment of teaching physicians under Medicare and Medicaid, and the effects of such payments to physicians and teaching hospitals on patient care, graduate medical education, and the distribution of health care services led to legislation calling for a study to be conducted by the National Academy of Sciences. Section 15c of the Social Security Amendments of that year states that:

> The Secretary of Health, Education, and Welfare shall arrange for the conduct of a study or studies concerning (A) appropriate and equitable methods of reimbursement for physicians' services under Titles XVIII and XIX of the Social Security Act in hospitals which have a teaching program approved as specified in section 1861 (b) (6) of such Act, (B) the extent to which funds expended under such titles are supporting the training of medical specialties which are in excess supply, (C) how such funds could be expended in ways which support more rational distribution of physician manpower both geographically and by specialty, (D) the extent to which such funds support or encourage teaching programs which tend to disproportionately attract foreign medical graduates, and (E) the existing and appropriate role that part of such funds which are expended to meet in whole or in part the cost of salaries of interns and residents in teaching programs approved as specified in section 1861 (b) (6) of such Act.

The specific origin of this legislation was problems with the methods used for the payment of physicians in teaching hospitals, as expressed in charge (A). The rest of the charges reflect concern about several broader health manpower issues.

A steering committee of the Institute of Medicine, National Academy of Sciences, was appointed to provide policy guidance and direction to the study staff; the recommendations are the recommendations of the steering committee. Three advisory panels were established to provide technical assistance in the areas of teaching physicians and teaching hospitals, specialty and geographic distribution, and foreign medical graduates.

The data were gathered and analyzed by the staff of the Institute of Medicine.

INTERPRETATION OF THE CHARGE

The questions raised in the congressional charge are related to broader issues such as the financing and organization of health care and graduate medical education. In the recommendations, however, the steering committee has responded to the specifics of the congressional charge and remained as neutral as possible on the broader issues.

We have tried to make our recommendations on the choice between fee-for-service and cost options consistent with latitude for institutions to employ payment modes of their own choice, while minimizing the problems of payment that the Congress identified. We also wished to encourage experimentation with new modes of payment.

We have based our recommendations for reimbursement of costs associated with teaching or learning on the existing general framework for support of graduate medical education in the United States, recognizing that fundamental changes in that framework (for example, direct support for graduate medical education through capitation grants) might make some of our recommendations unnecessary and others inappropriate. And we have framed our analysis and our single recommendation on foreign medical graduates without making any assumptions as to the adequacy of the future supply of United States medical graduates or the quality of foreign medical graduate training.

ORGANIZATION OF THE REPORT

The report is in three parts:

- Part I is a summary of the study findings and the responses to the specific charges of Congress.

- Part II presents detailed findings; analysis of data collected in the study, including description of the graduate medical education programs in teaching hospitals; discussion of the methods of analyzing different ways to pay physicians who teach and provide patient care services;

effects of different methods of payment on institutions; factors affecting geographic and specialty distribution; determination of optimal physician supply; federal policies to effect improved distribution of physicians; and foreign medical graduates in graduate medical education programs.

- Part III contains technical appendices on the study methods (to be published in May 1976).

Chapter 1 of Part I of the report summarizes the findings, conclusions, and recommendations of the study on the payment of physicians in teaching hospitals. Options for payment of physicians in teaching hospitals are discussed with recommendations for future payment methods. Detailed data gathered in the field studies of 96 hospitals and data from the Institute of Medicine's National Survey Questionnaire, sent to 1,400 hospitals, provide the basis for the findings. A consistent method was developed to test the effect of the options analyzed and to be used in defining additional options. Chapters 1 through 6 of Part II contain detailed descriptions of institutional organization and financing of teaching hospitals and medical schools, teaching physician activities and compensation, organization of patient care in teaching hospitals, graduate medical education, discussion of the role of carriers and intermediaries, and an analysis of the impact of different payment options.

Chapter 2, Part I analyzes the influence Medicare and Medicaid payments may have on the geographic and specialty distribution of physicians. To respond to these charges, it was necessary to explore the potential methods and problems of determining "optimal" supply of physicians by specialty. Seminars were conducted for four states - Arizona, Oregon, Michigan, and Georgia - to determine the possibility of defining optimal specialty distribution. Participants were given information on demographic characteristics of the area, available health indicators, utilization data, national and international physician distribution information, and whatever physician productivity data were available. They explored the availability and usefulness of data in determining optimal distribution and made suggestions for methods of determining these distributions in the future.

The study group also analyzed economic and social factors that affect the concentration and distribution of physicians in the United States. Data from the field studies and National Survey Questionnaire provided the basis for the analyses of sources of support of training programs. A study of Medicare, Medicaid, and private insurance fees was undertaken to determine what relationships, if any, exist between fees and distribution of physicians. Chapter 2 of Part I summarizes the findings on specialty and geographic distribution; detailed analyses are in Chapters 7 through 10 of Part II.

Data were gathered and analyzed on the distribution and activities of foreign medical graduates in graduate medical training programs, and Medicare and Medicaid support of these programs. Chapter 3 of Part I summarizes these findings, discussed in detail in Chapter 11 of Part II.

NATIONAL SURVEY

A questionnaire survey of the nation's 1,400 identifiable teaching hospitals brought a response from 73 percent of them. Information was collected on characteristics, finances, and educational programs in teaching hospitals. It included patient payment status, number of house staff, support of house staff salaries, number of foreign medical graduates in training, medical staff sources of compensation and teaching activities, and contractual arrangements for physician services.

FIELD STUDIES

Site visits were made to 96 teaching hospitals, 15 of which were federal Veterans Administration hospitals; 15 medical schools; and two osteopathic schools, in addition to pretests in three medical schools and seven teaching hospitals. The field studies provided information about institutional organization and financing; house officer activities and support of graduate medical education programs; teaching physician activities and relationships with patients; billing and collecting arrangements; and compensation and employment agreements between physicians and the medical school or hospital. Field staff examined the organization and delivery of patient care, including admission into patient services; assignment of patients to physicians and patient care settings within the hospitals; patient payment status; systems used for billing patients and third party payors; and systems used for collection and distribution of revenues from patient care fees.

INTERMEDIARY AND CARRIER SURVEY

All intermediaries and carriers who administer Parts A and B of Medicare were surveyed for their definitions of teaching physicians and teaching hospitals, their interpretation of the Social Security Administration's current instructions concerning the reimbursement of teaching physicians, Intermediary Letter 372 (IL 372), and the frequency and methods of audit. Follow-up visits were made to a sample of carriers.

FEE SCREEN SURVEYS

The Social Security Administration (SSA) has developed data on prevailing fee screens for 39 procedures for all Medicare carriers. The Institute of Medicine, in cooperation with SSA, the Office of the Assistant Secretary of Planning and Evaluation, and the Medical Services Administration of the Social and Rehabilitation Services, collected similar data from most state Medicaid agencies. The Health Insurance Association of America made available its information about level of surgical fees paid by the major carriers within regions. Fee data were not available from the Blue Shield plans.

INSTITUTE OF MEDICINE

Social Security Studies

STEERING COMMITTEE

Chairman

Adam YARMOLINSKY, Ralph Waldo Emerson Professor of the University, University of Massachusetts, Boston, Massachusetts

Members

Robert M. BALL, Scholar-in-Residence, Institute of Medicine, National Academy of Sciences, Washington, D.C.

H. Robert CATHCART, President, Pennsylvania Hospital, Philadelphia, Pennsylvania

Robert A. DERZON, Director, Hospitals and Clinics, University of California at San Francisco

Merlin K. DUVAL, M.D., Vice President for Health Sciences, The University of Arizona, Tucson, Arizona

Maureen HENDERSON, M.D., Assistant Vice President for Health Affairs, University of Washington, Seattle, Washington

John L. S. HOLLOMAN, Jr., M.D., President, New York City Health and Hospitals Corporation, New York, New York

Alvin J. INGRAM, M.D., Chief, The Campbell Clinic, Inc., Memphis, Tennessee

James F. KELLY, Ph.D., Executive Vice Chancellor, State University of New York, Albany, New York

Max MICHAEL, Jr., M.D., Assistant Dean, Jacksonville Hospitals Educational Program, Jacksonville, Florida

Morton D. MILLER, Vice President and Chief Actuary, The Equitable Life Assurance Society of the United States, New York, New York

Robert G. PETERSDORF, M.D., Professor and Chairman, Department of Medicine, University of Washington, Seattle, Washington

Social Security Studies
Steering Committee
(Continued)

Louis ROLNICK, Director, Welfare and Health Benefits Department, International Ladies' Garment Workers' Union, New York, New York

Charles L. SCHULTZE, Ph.D., Senior Fellow, Brookings Institution, Washington, D.C. (resigned June 1975)

J. Jerome WILDGEN, M.D., Physician and Surgeon, Family Medical Association, Inc., Kalispell, Montana

INSTITUTE OF MEDICINE

DAVID A. HAMBURG, M.D., President

Social Security Studies - Staff

Ruth S. Hanft, Study Director

James E. Lewis, Ph.D., Deputy Study Director
Barbara L. Cohen, Special Assistant
Juliana V. Goldberg, Editor

Teaching Hospitals

James E. Lewis, Ph.D.,
  Technical Director
David A. Bowers
Nan E. Cohen
Melissa Craig*
Polly M. Ehrenhaft
Cleo E. Hancock
Karl D. Hermanson
Joshua H. Minkove
David R. Ott
Richard B. Sablowsky*
Betty L. Sheltra
Rebecca B. Smith
Sunny G. Yoder
Jane W. Young

Field Staff*

Miriam Alter
Carl Angelis
Walter J. Chao
Christine Cook
Susan Corcoran
John Criner
Edward Curran
Thomas Flowers
Laurie Goldstein
Harry Hetherington
Miriam Lipman
Catherine McLaughlin
Charles E. Newkirk
Patricia Parker
Hila R. Sherer
Brenda Smith
Gwendolyn M. Taylor

Manpower Analysis

Martha Blaxall, Ph.D.,
  Technical Director
Jon R. Gabel
Barbara S. Heller*
Wanda B. Robinson
Gloria Ruby
Lynn Squire*
Jose Villavicencio*
Catherine C. White

Manpower Modeling

Richard J. Greene, M.D., Ph.D.,
  Technical Director
Kathleen Dolan
Lenard Cohen

Data Resources

Mary G. Brown, Director
Judith L. Barlin
Catherine J. Goeser
Po-Kyung Kim

---

*Assignments completed on or before 12/31/75.

PART I–FINDINGS AND RECOMMENDATIONS

SUMMARY

Ever since the implementation of the Medicare program in 1966, there have been problems with its methods of payment for physician services in teaching hospitals. The Medicare payment structure is based on the long-standing model of separate billing by the hospital and the patient's physician. Medicare Part A, the hospital insurance program, pays hospital costs, including salaries of interns and residents, and supervising physicians participating in education programs in the hospital. Medicare Part B, the supplementary medical insurance program, pays for the services of the physician who is responsible for the care and medical decisions concerning any particular patient.

In teaching hospitals, the actual services and responsibilities do not correspond to the crisp distinctions implied by Part A and Part B. Teaching and patient care occur inseparably. Responsibility for the patient, medically if not legally, becomes shared among the teachers and the learners. The complexity of dividing payment between Part A and Part B for these indivisible services has been of mounting concern to the Congress, medical educators, and the Social Security Administration, which administers Medicare.

Several efforts have been made to ease the situation, but with only limited success. Instructions have been issued in an attempt to clarify the circumstances under which a teaching physician may be paid for personal and identifiable professional services to patients or for the supervision of such services when provided by interns and residents. The current policy is embodied in Intermediary Letter 372, promulgated in 1969.

An amendment to the Social Security law (Section 227) was enacted in 1972 in an effort to simplify the payment problem by establishing presumptions that, if met, would result in many hospitals being classified in their entirety as (1) hospitals in which the physician or hospital could bill for professional fees and (2) those that must be paid on a cost basis for professional services. The classification scheme entailed a professional test and a patient liability test. In other situations, Section 227 allowed physicians to bill on a fee basis for services to patients with whom they had a prior professional relationship. But before Section 227 was implemented, the Social Security Amendments of the following year, 1973, requested that this Institute of Medicine study be made of the Medicare payment system for physician services in teaching hospitals. Pending completion of the study, Section 227 was suspended.

The charges for this study, as stated verbatim in the preface, are concerned principally with determining appropriate and equitable methods by which Medicare and Medicaid can pay for physician services in teaching hospitals. However, Congress also asked for an examination of how the payments affect the distribution of physicians both by specialty and geographically, and how they attract foreign medical graduates to one type of training program or another.

In an effort to answer the principal congressional question, the Institute of Medicine study group sent a national survey questionnaire to the 1,400 identifiable teaching hospitals in the United States and conducted detailed field investigations of 96 teaching hospitals, 81 of them non-federal. The survey and field studies were designed to collect the most complete possible array of facts on teaching physicians, teaching hospitals, their variety of patients, their relationships with medical schools, the revenues created by teaching and patient care, and the various controls and uses for those revenues. These and more data were needed before the study group could consider the effects of present Medicare payment methods and anticipate what might be accomplished by making changes in those methods.

Capsule descriptions of the information gathered on teaching hospitals, and the study group's recommendations based on analysis of that information, immediately follow. After those will be found similar summary sections, each with recommendations, on specialty and geographic distribution of physicians, and on foreign medical graduates. A more detailed explanation of the findings and recommendations is contained in the body of the report.

TEACHING HOSPITALS

The teaching physician provides graduate medical education and patient care in the teaching hospital. Lacking a definition from legislative history or regulations, the study defines a teaching physician as a fully trained physician (therefore, not enrolled in a graduate training program) who is responsible for or directly engaged in patient care activities and is responsible for the instruction and supervision of interns, residents, or fellows.

The close interweave of education, research, and patient care in teaching hospitals means that teaching physicians spend much of their time in joint activities, most commonly teaching in conjunction with patient care, which occupies 20 percent of total professional time of salaried hospital physicians. The principal student in joint teaching and patient care is the house officer (intern, resident, or fellow), more than 80 percent of whose time is spent in activities directly related to patient care.

A great variety of compensation arrangements exists between teaching physicians and hospitals or medical schools. Many teaching physicians are employees of the institutions. Others have contracts that stipulate specific services or amounts of time. Teaching physicians often have financial arrangements with more than one institution. Control of professional fee revenues ranges from solely institutional, in which case physicians are on salary or contract, to solely practitioner-run, in which case the physician bills and collects, and has no financial arrangement with the hospital. In between those extremes are faculty practice plans that receive and control fees at the level of the medical school, department, or hospital. Where they can be identified, professional fees make up 9.7 percent of gross revenue of public medical schools and 12.4 percent of gross revenue of private schools. Most of these fees are applied to faculty compensation.

House staff compensation, with few exceptions, is by salary from the hospital, medical school, or both. In the majority of hospitals studied, house officer salaries came from general patient care revenues. In some other instances, salaries came from state or local appropriations to the institutions.

The 96 federal and non-federal hospitals in the field study sample were classified in one of four ways according to their education ties with medical schools: (1) principal teaching hospitals, 32 of the sample, are those in which medical school clinical departments direct all aspects of graduate training programs; (2) graduate associated hospitals, 44 of the sample, have one or more training programs directed by medical school clinical departments, and may also have training programs independent of the medical school; (3) undergraduate associated hospitals, 10 of the sample, have a tie to a school only for undergraduate clinical training, and conduct their own independent graduate medical education programs; (4) independent hospitals, 10 of the sample, conduct only their own graduate medical education programs.

The type of hospital ownership--voluntary nonprofit, government, or proprietary--has a relationship to the type of patient population. To some extent, patients classify themselve by their choice of hospitals. Medicaid patients, by definition medically indigent, more often choose public hospitals. Medicare patients, whose shared quality is age or disability rather than indigency, more often go to voluntary nonprofit and proprietary hospitals.

Patients also are classified by the hospitals, usually on admission, according to a prior client relationship with the attending physician or their ability to pay. Their classification as "private" or "non-private" patients has a relationship to the profile of the hospital overall. Among the 81 non-federal hospitals of the sample, 23 had a patient population classified almost entirely as private; 20 others had almost all non-private, and 38 had proportions of both.

Hospitals with mostly private patients (1) were all voluntary nonprofit or proprietary, (2) without exception used fee-based methods of payment for physician services, (3) had physicians in control of professional revenues in 78 percent of the instances, and (4) included four principal teaching and three independent hospitals, the entire group having minimal involvement in graduate education--a median of five programs per hospital.

The 20 hospitals with mostly non-private patients (1) included 19 publicly owned, (2) included 11 that used a cost-based or compensation related method of payment for physician services, (3) had nine others that used fee-based methods but only six of those with physician control of professional revenues, and (4) included 10 principal, nine associated, and one independent teaching hospital--with a median of eight graduate programs per hospital.

The 38 hospitals with both private and non-private patients (1) included 29 of nonprofit-voluntary ownership, (2) had 35 using fee-based payment of physicians, (3) had physician control of professional revenues in 21 of those 35 instances, and (4) included 11 principal, 21 associated, and six independent teaching hospitals--with a median of 12 graduate medical education programs per hospital.

Patient classification also is a factor in the extent of a house officer's responsibility for patient care and the amount of supervision the house officer receives. House officers have more responsibility and less supervision by teaching physicians when they are taking care of non-private patients than they do with private patients.

The study group examined six existing or potential methods by which Medicare might pay for physician services in teaching hospitals. The methods are:

- conventional fee, the same system that applies to non-teaching physicians

- IL 372, the present policy used in determining eligibility of a teaching physician for a Medicare fee payment

- Section 227 "fee," the proposed stricter definitions of circumstances under which a fee could be paid to a teaching physician for services to patients

- Section 227 "cost," an option under which a teaching hospital may choose to receive cost reimbursement for teaching services

- unified payment, which would pay charges under Part B of Medicare for all physician services whether they were performed by a teaching physician or a house officer. Supervision by teaching physicians and house officer salaries would no longer be paid as part of hospital costs

- lump sum payment, a negotiated amount paid for specified services to a specified group of beneficiaries.

Each payment method was evaluated for its responsiveness to the congressional charges and its potential effects on teaching physician compensation and activities, institutional organization and financial support, graduate medical education, patient care, and program costs. The analysis indicated that no one payment method would constitute appropriate and equitable compensation in all teaching hospital circumstances, or could be applied universally without adverse effects on graduate medical education in the United States.

RECOMMENDATIONS (abridged)*

The steering committee has developed recommendations that recognize congressional concerns about appropriate and equitable payment of teaching physicians for professional services in teaching hospitals....Two recommended payment methods--a cost method and a unified method of payment--fully answer the concerns of Congress about proper payment for the type of care received. At the present time, however, neither fits the way in which graduate medical education is conducted in most institutions. It has been necessary, therefore, also to recommend incremental improvements in the more generally applicable method of fee payments to teaching physicians under Part B and cost-based payments for interns and residents under Part A. ...The steering committee believes that, for cost and unified payment methods to be fully effective, other third party payors would have to adopt them.

Recommendation 1. A Cost-Based Method of Payment*

The elective cost reimbursement payment method currently in effect under Section 15, Public Law 93-233 should be continued. Minor modifications are recommended...:

---

*See detailed recommendations in Chapter 1.

(1) Fee-based payment should be allowed in hospitals electing cost for special care units...that are open to the community.

(2) The cost of physician services should reflect as closely as possible the full costs of providing the services.

(3) Under the cost payment regulations issued under Section 15, Public Law 93-233, inclusion of payment of the imputed value of volunteer services should be continued....

(4) Under the same cost regulations...The ceiling of $30,000 on the imputed value of a volunteer teaching physician's services should be changed to the average salary for full-time physicians in the area or the VA compensation for full-time physicians if an area average is unavailable....

Recommendation 2. A Unified Method of Payment*

The unified method of payment is appropriate to institutions where there is a physician team approach to patient care and graduate medical education. Present knowledge and understanding of this method of payment suggest that it is responsive to the concerns of Congress and also appropriate to the ideals of graduate medical education. All services of licensed physicians (teaching physician and house officer) are paid out of Part B, except house officers who have not completed the first year of post-M.D./D.O. training (or second depending on state licensure requirements). Such house officers would be paid on a cost reimbursement basis to the hospital. The proposed conditions for this payment method limit its application to teaching institutions where there is a close relationship between teaching physician and house officer so that the conditions for personal and identifiable service are met by the team regardless of who actually performs the service....

Recommendation 3. A Fee-Based Method of Payment*

A fee-based method payment is appropriate for teaching physicians only when they provide personal and identifiable services to program beneficiaries or directly supervise the provision of such services by house officers....With one exception, the physician role test as described in the proposed Section 227 regulation is deemed appropriate as a test of whether personal and identifiable services are provided. The exception is the requirement for a preadmission relationship between the physician and patient....Under this method, after two years, no cost reimbursement would be allowed for supervisory and teaching services in teaching hospitals....

---

*See detailed recommendations in Chapter 1.

Recommendation 4. Demonstration and Experimental Payment Methods

Three payment methods are recommended for demonstration and experiment in the Medicare and Medicaid programs. Each proposal for a demonstration or experimental payment method should include a plan for evaluating the payment method which includes its effects on the program beneficiary, the physician, the institutional provider, and the program itself:

(1) The unified method of payment (Recommendation 3) with less restrictive conditions and criteria as may be proposed by physician groups or institutions and agreed to by the Social Security Administration on a demonstration and experimental basis.

(2) The lump sum method used widely to provide payment for professional patient care services to specific patient groups, for example, crippled children under Title V, Maternal and Child Health Programs. This method of payment involves a negotiated contractual relationship between physicians or institutional providers and the payor....

(3) A fee-based method under which licensed residents in family practice, general practice, pediatrics, and general internal medicine who have completed either the first year of post-M.D./D.O. training (or second year, depending on state licensure requirements) would be certified by the director of the training program as qualified to perform independently certain specified services or procedures in the hospital outpatient department. The resident could be paid for these services just as any fully trained physician would be....There would be no cost reimbursement for salaries of these residents and no consultant fee paid for teaching.

Recommendation 5

Section 227 of Public Law 92-603 should not go into effect on July 1, 1976. Until new legislation can be enacted and attendant regulations issued, Section 227 of Public Law 92-603 should be further suspended and authority to continue cost reimbursement for physician services under Section 15, Public Law 93-233 should be extended.

Recommendation 6*

Administrative priority should be given to getting a more uniform application of the Medicare regulations and guidelines across the country....

---

*See detailed recommendations in Chapter 1.

Recommendation 7

To move toward more uniform treatment across programs, the recommended payment methods for teaching physicians should be given serious consideration by state Medicaid programs and other third party payors.

Recommendation 8

Proposals for future changes in the method of payment should be accompanied by "impact analyses," which would estimate the dollar differences to result from the change, the effects on the structure for receipt and control of professional service revenues, and the effects on the beneficiary, institutional provider and professional, and the health insurance program.

DISTRIBUTION OF PHYSICIANS BY SPECIALTY AND GEOGRAPHY

Congress asked about the extent to which Medicare and Medicaid payments support the training of medical specialists "in excess supply" and how the payments could be used to encourage a more rational distribution of physicians both by specialty and geographically.

There are great problems in trying to define what might be an appropriate supply of physicians among the various specialties or among all the communities of the nation. There is little agreement on the "needs" of a population for health care services. There is imperfect understanding of relationships among physician distribution and other components of the health care system, including its organization and financing.

The study group conducted a series of seminars to collect the judgments of experts as they experimented with methods of determining the optimal distribution of generalist and specialist physicians for several states of the United States. The results of those manpower seminars, together with a review of comparative data from other studies and an analysis of the compatibility of numbers of residency positions with present and future physician manpower goals, led the study group to some conclusions about the distribution of physicians and the influences toward one or another medical specialty, or one or another location in the country.

- Primary care appears generally to be undersupplied, and would benefit from an increase in the total number and proportion of "contact" physicians.

- Surgery appears to be oversupplied and should have no further increase in ratio of surgical specialists to population, which in effect, means limiting the number of physicians entering surgical specialty training.

- There exist identifiable geographic regions of contact physician shortage, which would benefit from increases in number of contact physicians and innovations in extending their services.

- A physician's choice of specialty is not adequately explained by expectation of lifetime earnings, is not made at any one particular time in the education process, is frequently changed, and is predisposed toward examples that the education process presents--greater specialization, less ambulatory care.

- Medicare and Medicaid payments support faculty and house officer salaries in teaching hospitals, and would seem to favor the present pattern of the education process--greater specialization--over the establishment of new training -- ambulatory care -- because of less favorable reimbursement provisions for outpatient care.

An analysis was undertaken of Medicare and Medicaid fees in relation to physician choice of location or specialty. Medicare and Medicaid payments accounted for 17 percent of payments to physicians in the United States in 1973. In general, it was found that prevailing charges and therefore, the general pattern of physicians' fees, tend to be higher in areas with high physician-to-population ratios. Other factors with which high Medicare fees are associated are concentration of hospital beds and medical schools, high income areas, large metropolitan areas, and West Coast counties.

RECOMMENDATIONS (abridged)*

Recommendation 1

The steering committee recommends that financing mechanisms be changed to provide more equitable support for ambulatory care services so that medical school and teaching hospitals would find it easier financially to support primary care training programs. Furthermore, Medicare and Medicaid monies might be used as an incentive to support the expansion of training opportunities in the contact physician specialties. The costs of residencies in the contact physician specialties should be excluded from provisions of Section 223 which place a ceiling on the allowed increase on costs to be covered by Medicare.

Recommendation 2

The steering committee recommends that direct support to medical schools and teaching hospitals through special project grants for the support of primary care training be continued.

Recommendation 3

A permanent quasi-public independent physician manpower commission of 13 members should be established by law to monitor the specialty distribution of physicians to determine the appropriate number of residency slots for each specialty. The enforcement of the commission's determinations would be the responsibility of the Liaison Committee for Graduate Medical Education, the Coordinating Council on Medical Education, and the American Osteopathic Association Committee on Postdoctoral Training through extension of their respective accreditation mechanisms, to control the number of residency positions in each training program....If, after appropriate consultation with the private sector, the Secretary of HEW finds that the commission's determinations have not been implemented within three years following the establishment of the commission, the Secretary should seek legislation to reconstitute the commission as a federal advisory committee to himself and to permit the withholding of Medicare and Medicaid funds from residency programs in specialties considered in excess supply by the commission.

---

*See detailed recommendations in Chapter 2.

Recommendation 4

The steering committee recommends that the following interim strategy for postgraduate physician training be implemented on July 1, 1977, and remain in force until the commission and the voluntary accreditation agencies have time to develop and implement a comprehensive physician manpower plan.

(1) With the exception of the category of contact physicians, defined as family practice, general internal medicine, and general pediatrics, the number of all other postgraduate specialty training slots available as of July 1, 1977, should be held at the level of residency positions filled as of July 1, 1975.

(2) The number of training slots for contact physicians should be expanded, with care given to ensure that the highest quality education environment is maintained.

(3) There may be unusual circumstances which warrant an expansion of residency training slots in other than the contact specialties. Examples of these situations would include medical schools in the process of development or pending commitments to individual trainees.

Recommendation 5

A major study should be undertaken to re-examine the basis of physician fees and fee allowances in public and private health insurance programs.

Recommendation 6

The study group recommends that Medicaid practices which pay physicians at lower levels [in one geographic area than in another], particularly in underserved areas, be discontinued.

Recommendation 7

A detailed examination of Medicaid administrative practices should be undertaken to document the extent to which these practices affect the availability of physician services in underserved areas.

FOREIGN MEDICAL GRADUATES

The congressional charge for this study also asked for a determination of the extent to which Medicare and Medicaid payments "support or encourage training programs which tend to disproportionately attract foreign medical graduates."

United States medical education, and particularly its graduate programs, has had a steadily increasing influx of foreign-trained participants since the 1948 Smith-Mundt Act, which authorized exchange visas for citizens of other countries who wished to pursue educational opportunities here. In 1950, hardly 10 percent of the United States internships and residencies were occupied by foreign medical graduates. By 1975, one-third of the house officers in American teaching hospitals were foreign-trained and about one-fifth of all licensed physicians in the country were foreign graduates. During that 25-year period, the number of graduate training positions increased faster than the number of United States medical students who would fill them, while further changes in the exchange visitor education program and immigration laws made entry of foreign physicians easier than ever before.

The availability of approved graduate training positions to foreign medical graduates in the future, however, is expected to decline. Government incentives during the 1960s for an increase in American physician supply prompted an increase in the number and size of United States medical school classes. Projected numbers of the United States graduates indicate that by the mid-1980s they will fill almost all the currently existing graduate education slots. And the present total of slots may be greater than in the mid-1980s; the preceding recommendations of this report alone, as concerns a moratorium and monitoring for most categories of graduate medical education, pose a possible reduction in the number of approved programs. Lessened opportunities for foreign-trained physicians to enter graduate medical programs here also will reduce their eventual numbers in the fully licensed United States health system; most licensing bodies here require completion of graduate programs by foreign-trained physicians.

Although an overall diminution of opportunities for foreign medical graduates in the United States is readily discernible, an identification of programs that "disproportionately attract" them is a more complex undertaking and entails normative judgments. The study group examined the characteristics of programs and institutions to determine their positions relative to national averages of foreign medical graduate concentrations. For the purposes of this study, these guidelines were established:

- A particular specialty is considered above the national average if the proportion of foreign medical graduates in training exceeds the proportion of foreign medical graduates in training in all specialties.

- A particular training program is considered above the national average if the percentage of foreign medical graduates exceeds the national average for that specialty.

- An institution is considered above the national average if more than 30 percent of its house staff are foreign medical graduates or if more than 38 percent of its training programs have foreign medical graduate percentages that exceed the national specialty average.

Categories of hospitals with the greatest concentration of foreign medical graduates above the national average were: state independent (69 percent), private independent (61 percent), local independent (60 percent), and private undergraduate associated and state undergraduate associated (both 59 percent).

In general, the more closely a hospital is affiliated with a medical school the less likely it is to have an above-average concentration of foreign medical graduates. Only 40 percent of the principal and graduate associated institutions have a foreign medical graduate concentration that exceeds the national average; 56 percent of undergraduate affiliated institutions and 60 percent of independent institutions have above-average concentrations.

Medicare and Medicaid support was not greatly different for institutions of high and low concentrations of foreign medical graduates. Information collected from United States medical graduates and foreign medical graduates in house officer positions indicates that to some extent the foreign-trained physicians occupy slots remaining after United States-trained physicians have made their graduate education choices.

RECOMMENDATION

In view of the decreasing number of positions likely to be available for foreign medical graduates and the possibility that future foreign medical graduates may not be able to get the graduate medical education necessary for full licensure in this country, the steering committee recommends the elimination of existing incentives for physician immigration, including the removal of medicine as a shortage profession under the Department of Labor's Schedule A.

Chapter 1

PAYMENT FOR TEACHING PHYSICIAN SERVICES IN TEACHING HOSPITALS

In the Social Security Amendments of 1973 (Public Law 93-233) Congress requested a study of:

> Appropriate and equitable methods of reimbursement for physicians' services under Titles XVIII and XIX of the Social Security Act, in hospitals which have a teaching program as specified in section 1861(b)(6) of such Act...
>
> The existing and appropriate role [of] that part of such funds which are expended to meet in whole or in part the cost of salaries of interns and residents in teaching programs approved as specified in section 1861(b)(6) of such Act.

This chapter discusses the policy concerns that led to these charges and summarizes the findings of the field studies and analysis that support the steering committee's recommendations. The chapter is divided into major sections about government policies for payment of teaching physicians, findings of the teaching hospital field studies, evaluating existing payment methods and their effects on sample institutions, and recommendations of the steering committee.

The focus of this part of the study is on the teaching physician, who provides graduate medical education and patient care in the teaching hospital. In 1975, more than 55,000 interns and residents were in graduate medical education programs. These training programs are based in the nation's 121 operating medical and osteopathic schools and 1,250 teaching hospitals, about one-sixth of all hospitals. Training is provided by physicians who may or may not be members of a medical or osteopathic school faculty. Because so much of graduate medical education is carried out by physicians who donate some portion of their professional time to teaching, the exact number of teaching physicians is unknown. Data from the American Medical Association, the Association of American Medical Colleges, and this study, suggest that one-fourth to one-third of the 300,000 physicians in the United States are involved in graduate medical education programs to some extent.

In non-teaching hospitals, physician services are usually delivered by an individual physician to an individual patient. In teaching hospitals, however, a team of house officers* and attending physicians cares for patients, in the course of which house officers receive their education and training. This training process is a continuation of clinical education which begins by the third year of medical school and ends in the completion of formal training one to eight or more years after receipt of the M.D. or D.O. degree. At each stage of training, the house officer gains greater independence, increases the scope of activities he is permitted to perform with less supervision, and trains and supervises more junior house staff.

GOVERNMENT POLICIES FOR PAYMENT OF TEACHING PHYSICIANS

Medicare Payment Policies

Medicare payment for patient care services in teaching hospitals is divided into two parts. Part A pays hospital costs of program beneficiaries (except for certain deductibles and coinsurance). Part B pays (with certain deductibles and coinsurance) for physician services. Since the outset of the Medicare program, reimbursement has been made to hospitals for the program's share of the cost of approved education programs, including internship and residency training programs, carried out in the hospitals. Medicare reimbursement to the hospital under Part A is based on costs and includes salaries, fringe benefits, and related support costs of house officers, and the compensation paid by the hospital to physicians for their teaching and supervisory services.

Medicare payment for physician services to patients was based on the medical care delivery model represented by the independent, private practitioner. In non-teaching settings, patients usually are cared for by their own physician, and although he may use other specialists as consultants, he usually makes all medical decisions and is legally responsible for them. The patient may be referred to a specialist, who admits him to the hospital, treats him, and assumes responsibility for making medical decisions. In either case, responsibility for making decisions about the patient's treatment is that of the attending physician, and Medicare pays the physician fees under Part B.

In a teaching setting, the attending physician may delegate some responsibility for patient care to house officers, but he retains legal responsibility for the patient. Since shared responsibility is the basis of graduate medical education, the issue of Medicare reimbursement for teaching physician services has focused, since 1969, on definition of the circumstances under which a teaching physician may be paid a fee for his medical services which does not duplicate other reimbursement. As Social Security

---

*Includes interns, residents, and fellows.

Administration policy has evolved, criteria required for payment of reasonable charges in the teaching setting have come to resemble those which exist in the non-teaching setting.

There is no indication that the special characteristics of medical care delivery in the teaching setting were considered as the original Medicare law was being written. The law and the legislative history made clear, however, that payment for physician services (other than those of interns and residents) to patients has to be on a reasonable charge basis under Part B of the program. The policy adopted (embodied in 1969 in Intermediary Letter 372) was that although reimbursement for teaching and supervisory functions of a physician, as well as the salaries of interns and residents, was made on a reasonable cost basis to the hospital, the same physician could be paid on a reasonable charge basis if he rendered either "personal and identifiable" services to the patient or was the patient's "attending physician" and provided "personal and identifiable" direction to the interns and residents who treated his patient.

In the context of graduate medical education, this is a somewhat artificial distinction, since the patient may be cared for by several physicians at various stages of their training, including the attending physician who has formal legal responsibility for his care. The difficulty of making these distinctions has led to congressional concerns about possible abuses of the program. These concerns were summarized in the Senate report accompanying the 1972 Social Security Amendments:

> It has proved to be difficult to achieve effective and uniform application of present policies to the large number of widely varying teaching settings. In some cases, charges have been billed and paid for services rendered in teaching hospitals which clearly did not involve any degree of teaching physician participation. In some cases charges were billed for the services that residents and interns rendered in every case where a supervising physician had overall responsibility for their actions, even though he may not actually have become involved in the patient's care. In other cases, charges for covered services were billed in amounts that were out of all proportion to the covered service or the charges billed to other patients. 1/

Thus, congressional concern about payment of teaching physicians for direct patient care services to Medicare beneficiaries in the teaching hospital has two origins: the original Medicare physician payment model was designed to fit other modes of medical care delivery; and under the legal structure of the Medicare program it is necessary to divide a single activity -- simultaneous patient care services and teaching -- so that each part can be paid to the proper party and from the appropriate financial source.

The Application of Present Policy

IL 372 spells out current policy for paying teaching physicians for medical services to Medicare beneficiaries. Since a great deal of patient care in a teaching hospital is provided by interns and residents whose salaries are paid for under Part A of Medicare, the problem IL 372 addresses is the circumstances under which it is reasonable to pay a fee to a teaching physician. A charge can be made by the teaching physician for identifiable, personal medical services to a patient or for the direct supervision of such services by house officers if the teaching physician meets the criteria established in IL 372 for determining that he is the "attending physician." If he cannot meet these tests, it is assumed that the care is rendered by the interns and residents and fully reimbursed under Part A, and that the teaching physician's role is that of the teacher and supervisor rather than personal physician.

Although documentation in the medical record is the only feasible way, other than direct observation, to determine whether personal and identifiable services were provided by a physician, audits of medical records have limitations. From the record, the auditor cannot determine with certainty (1) whether the physician was present and actively involved in the delivery of the care; (2) whether the physician carefully or cursorily reviewed the patient's progress and treatment plan; or (3) when the notes, comments, and signatures in the record were actually entered.

Differences in the carriers' interpretation of the documentation required in a medical record and whether it demonstrates that the IL 372 criteria were met have resulted in inconsistent application of the guidelines across the country. In some places guidelines are rigidly interpreted and enforced.*

Proposed Section 227 Regulations

Because of the difficulties of implementing and enforcing IL 372, the 1972 amendments (PL 92-603) to the Social Security Act included in Section 227 changes designed to simplify the problem of paying for the medical services provided by teaching physicians to program beneficiaries.

The main objectives of the new legislation were to establish a series of presumptions about the reasonableness of charging professional fees by teaching physicians for the entire beneficiary load in the hospital or in a part of a hospital; to avoid payment at usual and customary levels of the teaching physicians for patient care services if the services were actually rendered partly or entirely by interns and residents; and to allow payment for professional services by teaching physicians on a usual and customary level for their own patients regardless of the hospital or setting in which the care was given, unless the hospital, with the consent of all physicians performing services in the hospital, decided to elect a cost method of reimbursement for physician services in that hospital.

---

*For a more detailed discussion of carrier and intermediary administration see Chapter 5, Part II.

The regulations implementing Section 227 as published in preliminary form in the Federal Register would have supplanted the principles of IL 372 and substituted the right to charge on a fee-for-service basis only for services by teaching physicians to "private patients." Tests were set out which, if met, would have made all beneficiaries in a particular hospital private patients, or if the same tests were met for a distinct part of the hospital, beneficiaries in that part would all be considered private patients.

For the purpose of these presumptions, the proposed regulations required that for all patients in a hospital or a setting within the hospital to be considered private patients, it was necessary that the requirements in either Test A or Test B be met.

> Test A
>
> All of a hospital's inpatients or outpatients will be deemed to be private patients if the hospital establishes that during a 2-year period ending December 31, 1967, and each year thereafter: (A) all the patients have been regularly billed by the hospital for services rendered by physicians; (B) reasonable efforts have been made to collect in full from all patients; and (C) charges (including applicable deductibles and coinsurance) have been regularly collected in full or in substantial part [later defined as 75 percent] from at least 50 percent of all patients.
>
> Test B
>
> All of the patients in a hospital or hospital setting will be deemed to be private patients during a hospital accounting year if: (A) at least 85 percent of the patients in the setting [have the specified relationship with their personal physician]... (B) it can be shown that during a representative period of at least 4 consecutive months during the previous hospital accounting period, 50 percent or more of the patients in the setting paid the billed physician fees [in full or substantial part--later defined as 75 percent] from sources other than public medical assistance programs; ... [for Medicare patients, the same rules apply to the payment of deductible and coinsurance amounts,] (C) ability to pay was not a factor in deciding the status of the patients inside the setting or the services provided by various types of practitioners (for example, ability to pay had no bearing within

> the setting on the assignment of accommodations, or in the respective roles played by residents, interns, and the personal physician in patient care); and (D) assurance is provided that the foregoing requirements will continue to be met in subsequent accounting periods and appropriate arrangements have been made to notify the intermediary as soon as it appears that the foregoing requirements may not be met for any accounting period. 2

The proposed regulations also provided that a hospital could, with the agreement of all physicians with admitting privileges in the hospital, elect to be on a cost basis. Salaries and related support costs of physician services would be paid under Part A for services to Medicare beneficiaries; no physician charges for such services would be permitted. If it did not so elect and did not meet the presumptions previously discussed which made all patients in the hospital private patients, whether or not charges could be made by a teaching physician in a particular case would depend on:

- the relationship between that physician and a particular patient in non-emergency cases; for example, was the physician the patient's personal physician prior to admission, and

- whether, in addition, the particular physician had charged at least 50 percent of his other patients in the same setting and attempted to collect bills, including coinsurance and deductibles, from them.

This was a much stricter individual test for a patient-physician relationship than in IL 372 because of the prior relationship requirement and the requirement that 50 percent or more of the physician's other patients in the same setting be billed. Thus, in practice, whether a teaching physician could be paid on a charge basis often would be determined by the presumptive rules applying to all the patients in a hospital or a particular setting within a hospital.

Under Section 227 of PL 92-603 as modified by Section 15 of PL 93-233, hospitals that elect to be on a cost basis have had all physician services paid for on a cost basis for cost accounting periods beginning on or after July 1, 1973. As of January 1, 1976, twenty-seven teaching hospitals had elected this method of payment.

Medicaid Payment Policies

Although the Medicaid regulations originally required states to follow the Medicare policies covering cost reimbursement to hospitals, they are now allowed to follow other cost-based methods. However, amounts paid for physician services, including the services of teaching physicians, have always been determined by the states and differ from state to state. In some states, physicians who receive a part or full salary from state university medical schools or state-owned hospitals cannot bill fees under Medicaid. Some states follow the Medicare practice of paying physicians their customary charges up to the prevailing charges as defined under Medicare; others follow private insurance policies, which have more generous limitations on customary charges; more often the states pay below the Medicare level. Frequently, however, Medicaid uses a uniform fee schedule well below the market rate for all physicians, including teaching physicians. Non-payment and low payments to teaching physicians may limit the access of Medicaid clients to certain physicians.

Because Medicaid typically reimburses directly to the hospital for the costs of interns and residents and makes payments to teaching physicians separately, there are the same potential payment problems as under Medicare.

Other Payment Practices

Two less-used and less-known ways of paying for physician services under other government programs are the "unified" and "lump sum" payment methods.* The former is used only in the Medicare program to pay for certain physician services in a small group of teaching settings and the latter is used more broadly in government programs to purchase covered services for client groups from non-teaching as well as teaching physicians.

In its complete form, the unified payment method would pay for services of teaching physicians and house officers in cases where the latter are employees of a physician organization rather than a hospital. Payment for services would be made on a per capita, per diem, or fee-for-service basis regardless of who provided the service. There would be no payment under Part A. Currently, Medicare occasionally uses a similar payment method. For example, at a large midwestern clinic, Medicare makes no cost reimbursement for the services of either interns and residents or for the supervisory and teaching services of physicians. Charge payment for the services of the clinic's physicians in the two hospitals in which they practice is made solely for their personally rendered and "attending physician" services. This is because the costs of intern and resident salaries, as well as the full compensation of the physicians, are borne by the clinic and thus are not reimbursable to the hospitals. A somewhat different situation exists in other places. These and other modifications were instituted at these medical centers to accommodate longstanding historical variations in the financial arrangements for house officers. In these cases, all physicians are paid salaries and the physician organization receives and controls the expenditure of all professional service revenues. The physicians' practice is limited to one or two hospitals, and the physician group provides a broad spectrum of specialty and subspecialty services. In current practice, however, payment on a charge basis is made for the services of house officers only outside the hospital setting in clinics owned and operated by the physicians which are apart from the hospital and where the house officers are licensed physicians.

---

*See Chapter 6, Part II, for further discussion.

The "lump sum" payment method is used by the Maternal and Child Health Program (Title V) and by many state and local governments to provide physician services to specified client groups, for example, crippled children. It entails a negotiated agreement between the payor and individual physicians, physician groups, or institutions. The agreement establishes the services to be provided, the amount of payment, who will provide the services, and describes the client group without necessarily specifying the population of the group or the services to be provided to its members.

FINDINGS FROM THE FIELD STUDIES

Data collected in field studies in 17 medical schools and 81 non-federal hospitals during the spring of 1975 provide the basis for the evaluation of existing payment methods and assessment of the recommended payment methods. The findings* describe: who are teaching physicians; what teaching physicians do; what are the compensation agreements between teaching physicians and teaching hospitals and medical schools for receipt and control of professional service revenues; what are the amounts, sources and uses of professional fees generated by teaching physicians; and what are teaching hospitals?

Teaching Physicians**

"Teaching physician" is not defined explicitly in either the legislative history or in regulations. The study group based its definition on the activities of physicians rather than on where they are employed or practice. In this study, a teaching physician is defined as any fully-trained physician (M.D., D.O., or oral surgeon D.D.S.) not enrolled in a graduate training program who:

- is responsible for or directly engaged in any patient care activities performed by a physician; and

- is responsible for the instruction, supervision, or both of interns, residents, or fellows.

Of the 19,000 physicians with admitting privileges in the 81 non-federal sample hospitals, 15,000 are teaching physicians. Hospitals may not have teaching programs in each service and most do not have closed physician panels. Thus, all physicians with admitting privileges in teaching hospitals are not teaching physicians. Government payment policies, if applied to physicians in teaching hospitals on a hospital-wide basis, may be inappropriate for many physicians.

---

*The studies from which these findings were developed are reported in detail in Chapters 1-6, Part II.

**For a more detailed description, see Chapter 2, Part II.

Teaching Physician Activities

Although the study group defined a teaching physician in terms of two of his major activities -- patient care and teaching of house officers -- many teaching physicians also spend time in other professional activities: teaching of undergraduate medical students, research, professional development, and hospital or medical school administration. The process that produces education, research, and patient care in teaching hospitals requires that teaching physicians spend much of their time in multipurpose, or joint activities. A common example of this type of activity is rounds, during which care is rendered to patients by a team which may include teaching physicians, house officers, medical students, and sometimes nursing or allied health students. The students learn while observing and participating in patient care; two major activities of teaching physicians, teaching and patient care, are taking place simultaneously.

Another example of joint teaching and patient care is in the outpatient setting, where the teaching physician diagnoses and treats patients with house officers or other students present. Still another is the teaching radiologist and radiology resident reviewing x-rays together. Most of graduate medical education consists of this interaction of teaching physicians and graduate medical trainees in the course of providing patient care. Twenty percent of the total professional time of full-time teaching physicians is spent in this kind of interaction in joint teaching and patient care. (This amounts to 47 percent of their total patient care time.) Forty-five percent of their activities can be identified as teaching (10 percent), patient care (20 percent), or research (15 percent), and the remaining 35 percent is in administration, professional development, and other activities.

The "student" in this joint teaching and patient care activity is the house officer. In the sample hospitals, house officers spent 84 percent of their time in activities directly involving patient care. Only 10 percent of house officer time was reported as purely educational time away from patients and included, for example, time spent at seminars, lectures, and library work. The remaining six percent of their professional time was spent exclusively in teaching, research, and administration.

Receipt and Control of Professional Service Revenues

A central element of the arrangement between a teaching physician and an institution, whether school or hospital, is control over professional fees. In all cases, there is an explicit agreement between the physician and the institution about the collection and use of fees. The agreement may give him complete control over the collection and expenditure of fees; or it may require him to give up some or all of this control. In some institutions, each physician has a separate agreement and he may control the collection and use of fees much as a physician in private practice. In other institutions, there are hospital or faculty practice plans that collect and spend fees. Under such plans, a portion of their revenues is returned to the physician and a portion is used for other purposes.

Compensation arrangements between teaching physicians and hospitals and medical schools vary. Many teaching physicians are employees of these institutions; others have contractual agreements covering specific services or time; still others have no financial arrangements with any institution. It is not uncommon for a teaching physician to have financial arrangements with more than one institution.

Professional service revenues are handled several ways in the 81 non-federal sample institutions. Some hospitals receive and control professional service revenues whether they are paid on a cost or charge basis. Faculty or hospital practice plans may receive and control professional service revenues at one of three levels: the medical school, the department, or the hospital (by service or for patient groups based on source of payment). In many hospitals, physicians independently receive and control professional service revenues.

Hospitals which receive reimbursement for physician services on a cost or compensation-related basis* have sole control over these revenues and usually include them as part of their general patient care revenues. In these hospitals, the physicians are under contract for patient care services or are direct employees. Thus, there is an identifiable professional service expense. In 16 of the sample hospitals, professional services revenues for all patients are handled under this kind of arrangement.

In some cases, the hospital receives and controls professional fees under a fee-based method of payment. At five hospitals in the sample, the hospital bills and collects for professional services carried out by the physician group and expends these revenues, in part for physician salaries. Since those fee payments are part of the hospital's general revenues, any change in the amounts received will affect the total revenues available to the hospital.

In nine of the sample hospitals, fees for the professional services of teaching physicians are received and expended by a faculty practice plan which operates under the auspices of the medical school. For the most part, these revenues are used to support clinical faculty salaries, with small amounts going to support other institutional activities, such as basic science and graduate medical education. In seven of the sample hospitals, control over the collection and expenditure of professional fee revenues is at the medical school department level. Decisions about the use of these revenues, therefore, are likely to be narrower than in those hospitals where a medical school practice plan receives and controls professional service revenues. In five of the hospitals, hospital practice plans receive and control professional service revenues.

---

*Only 27 hospitals have elected the cost payment method authorized in Section 15, PL 93-233. These are typically government-owned hospitals which employ physicians and pay them a salary. A larger group of hospitals not on cost, including three sample institutions, receive payment for physician services on a "compensation-related charge basis." For example, if a physician is paid $50,000 per year by the hospital for his full-time services and 50 percent of his time is to be spent in patient care, then Medicare will pay charges from Part B based on the $25,000 compensation related to direct patient care.

Finally, there are many cases in which neither the hospital nor the medical school receives and controls professional service revenues. In the conventional pattern of independent private practice, the physician or a group provides the professional services, generates the bill, and collects and expends the revenues. Any association of the physicians with institutions is voluntary and there are no fiscal ties. Under this arrangement, decisions about the collection and use of fee revenues are not under the control of hospital or medical school or necessarily influenced by their general goals. Individual physicians independently control professional fee revenues in 46 of the 81 non-federal hospitals in the sample.

Role of Professional Fees in the Financing of Teaching Institutions

The ability to generate fees and produce income from patient care services makes it possible for many physicians to participate in teaching, whether on a volunteer, part-time, or full-time basis. Depending on the relationship of the physician to the institution, professional fee earnings support the institution directly or indirectly. Indirect support is important since the physician's willingness to volunteer his time to teaching programs may be conditioned by his ability to earn an income through the fees he can generate. Even if there is a faculty practice plan, volunteer faculty outside the plan bring their patients and teaching skills to the hospital and contribute to its overall support, as well as its teaching programs. Loss of the services and patients of these physicians would limit the scope and depth of the teaching programs, reduce patient care revenues to the hospital, and could cause some hospitals to employ physicians directly to provide needed patient care and teaching services.

Professional fees generated by teaching physicians are also an important direct revenue source for some teaching institutions, particularly medical schools. In a few cases, professional fees go directly to the medical school or the hospital. More often, they go to the individual physician or are collected by one or more practice plans. Data at the institutional level on total professional fee revenues are generally incomplete; even when totals are known, the sources of payment are not. Clinical faculty in the sample medical schools generated a minimum of $60.7 million in professional fees* in fiscal 1974. Of this total, $53.2 million was generated by faculty at ten schools. This amount includes all fees generated at those schools. The amounts range from about $200,000 at one school to $10.4 million at another. In most cases, less than 30 percent, a little less than the national average, of total professional service revenues came from Medicare and Medicaid (Table 1).

---

*Included in this figure are all fees controlled or monitored by the institutions. In seven of the schools, faculty earned fee income that was not known to the institution and for which complete data are unavailable.

Where they can be identified, professional fees make up 9.7 percent of public medical school and 12.4 percent of private medical school gross revenues from all sources. The majority of professional service revenues is used for faculty compensation (Table 2). The proportion is somewhat higher for public than for private medical schools in the sample. These funds are also used for faculty travel, equipment, and support staff. Few schools use professional service revenues to pay house officer salaries, although some pay for house staff secretaries, educational travel, and books. House staff compensation may come from the hospital, the medical school, both, or from an outside agency. With few exceptions, house officers are on a salary and do not bill fees for patient care. In most sample institutions, the hospital pays house officer salaries from general patient care revenues. In some cases, house officer salaries are paid from direct state or local government appropriations to state medical schools or teaching hospitals or from fee revenues generated by teaching physicians. House officers at advanced levels of training may be supported from faculty research grants or contracts or through direct grants and fellowships.

Under the Medicare and Medicaid procedures for computing reimbursement of hospital costs, house officer salaries and fringe benefits are included as allowable costs. The programs pay their proportionate share of these costs related to their share of inpatient service costs in the hospital. Outpatient service costs are handled differently; Medicare pays 80 percent of the cost of services from Part B and the beneficiary pays 20 percent of the charges as coinsurance. Although Medicaid payment practices for outpatients vary from state to state, in general the amount of payment is less than that paid by Medicare for each unit of service, but the payment for outpatient care may be on an encounter basis and the range of covered services may be greater under Medicaid than under Medicare.

Teaching Hospitals*

The activities of teaching physicians, their control over fee collection and distribution, and the amounts, sources, and uses of professional fees are influenced in large part by the following factors:

- ownership of the teaching hospital;
- extent of hospital association with a medical school;
- hospital patient classification (by ability to pay); and
- patients' pattern of seeking physician services.

---

*For a more detailed description, see Chapter 1, Part II.

TABLE 1. MEDICARE AND MEDICAID PROPORTION OF PROFESSIONAL FEES GENERATED BY MEDICAL SCHOOL FACULTY PHYSICIANS (FY 1974)

Medical school type	Total professional fees generated a/ ($millions)	Medicare fees generated (percent)	Medicaid fees generated (percent)	Total Medicare and Medicaid fees generated (percent)
Public				
A	8.2	12	12	24
B	4.0	20	12	32
G	5.3	NA	NA	NA
N	5.6	10 b/	5 b/	15
P	5.8	14 b/	14 b/	28
Q	.2	NA	NA	NA
Private				
C	4.2 1.5 c/	14 NA	11 NA	25 NA
D	2.8 d/	NA	NA	12 e/
E	5.1	NA	NA	NA
J	10.4	NA	NA	NA

Source: Institute of Medicine field data.

a/Figures include all fees generated by faculty physicians, whether those fees accrued directly to the physicians, to the medical school, to a hospital, or to some combination of the three. Only the ten sample schools for which data are complete are included.

b/Estimated.

c/This amount was generated by hospital-based departments; the Medicare and Medicaid portions are not known.

d/FY 1975; this is a more representative figure than the one for FY 1974.

e/This percentage is a low estimate.

NA: Not available.

TABLE 2. EXPENDITURES FROM PROFESSIONAL FEE REVENUES, SAMPLE MEDICAL SCHOOLS (percent) (FY 1974)

Medical school type	Total	Billing and administration	Clinical faculty compensation	Faculty fringe benefits	House officer salaries	Other expenditures
Public						
A	100	10	75	3	3	9
B	100	6	69	10	0	15
N	100	2 a/	55		3	40
P	100		56	0	3	41
Q	100	5	0	22	0	73
Private						
C	100	8	51		0	41
D	100		53	7	0	40

Source: Institute of Medicine field data.

Note: Blanks show that these expenditures are made from fee revenues, but the amount is unknown and is included with "Other." Zeroes mean that no expenditures are made.

a/Central billing costs only; many physicians do their own billing and some departments bill. These expenses cannot be identified.

In this study, a teaching hospital is defined as the site of graduate M.D., D.O., and D.D.S. training in programs approved by the American Medical Association, the American Osteopathic Association, and the American Dental Association. In these hospitals, house officers are involved in the delivery of medical care to patients under the supervision of physicians.

Teaching hospitals tend to be organizationally, and often physically, clustered around medical schools. The 96 sample hospitals could be grouped into four categories:

- "Principal" teaching hospitals are those in which the medical school clinical departments direct all aspects of all the graduate training programs in the hospitals. Thirty-two of the sample hospitals are principal teaching hospitals.
- "Graduate associated" teaching hospitals are the sites of training programs directed by medical school clinical departments and may additionally have training programs independent of the medical school. Forty-four of the sample hospitals are graduate associated teaching hospitals.
- "Undergraduate associated" teaching hospitals are involved with medical schools only for undergraduate clinical training and carry out independent graduate medical education programs. Ten of the sample hospitals are in this category.
- "Independent" teaching hospitals conduct their own graduate medical education programs. Ten of the sample hospitals are independent hospitals.

Teaching hospitals are owned by voluntary nonprofit organizations; federal, state, and local governments; and proprietary groups. Some are operated to serve specific patient populations; for example, the Veteran Administration hospitals, although most serve more general patient populations. Voluntary nonprofit and proprietary hospitals tend to serve patients who go to individual physicians or physician groups when they require medical services -- these patients are generally regarded as private. Public hospitals, particularly county and municipal hospitals, tend to serve patients who go to the institution for medical services -- these patients are generally classified as non-private. Many hospitals, public and voluntary nonprofit, serve both kinds of patients.*

If patients are classified in the hospital as private and non-private, classification usually takes place during admission and is based on whether the patient had a relationship with a physician before admission to the hospital or on the patient's ability to pay. The majority of patients, however, in effect classify themselves by their selection of a hospital or a physician for their source of medical services. It appears that Medicare beneficiaries, who will pay deductibles and coinsurance from non-public sources, are being seen in voluntary nonprofit and proprietary hospitals. Medicaid clients and Medicaid-eligible Medicare beneficiaries (18 percent of all Medicare beneficiaries) continue to make up a large portion of patient days in public hospitals.

---

*For a more detailed discussion, see Chapter 3, Part II.

The 81 non-federal hospitals in the sample were grouped according to how their patients were classified. In 23 of the sample hospitals, almost all patients are classified as private. In 20 hospitals, almost all patients are classified as non-private. Thirty-eight of the sample hospitals have both types of patients.

A house officer's responsibility for patient care and the level of supervision he receives vary according to whether patients in a particular hospital, or setting within a hospital, are private or non-private. House officers who see non-private patients have more responsibility for patient care in inpatient settings than do house officers who see private patients. House officers in hospitals with private patients and in mixed settings in hospitals which have both private and non-private patients receive more direct supervision from attending physicians than do house officers in hospitals or hospital settings with non-private patients.

Although the sample institutions vary, there are characteristics of ownership, educational association, patient care classification, arrangements for handling professional service revenues, and involvement in graduate medical education in the 81 non-federal sample hospitals that result in the following groupings:

In the 23 sample hospitals where almost all patients are classified as private:

- all are voluntary nonprofit or proprietary hospitals;
- all use fee-based methods of payment;
- in 78 percent of these hospitals, physicians independently control their professional fee revenues;
- four are principal teaching hospitals in pediatrics or psychiatry and three are independent hospitals; involvement in graduate education is minimal, with a median of five programs per hospital in this group.

In the 20 sample hospitals where almost all patients are classified as non-private:

- 19 are publicly owned, 13 by city and county governments;
- 11 use a cost-based or compensation-related charge method of payment for physician services;
- nine use fee-based methods of payment and three of those hospitals control the distribution and use of professional fee revenues;
- 10 are principal teaching hospitals, nine are associated teaching hospitals, and one is an independent teaching hospital; these hospitals have a median of eight graduate medical education programs.

In the 38 sample hospitals with both private and non-private patients:

- 29 are nonprofit voluntary hospitals;
- 35 use fee-based methods of payment and in 21 of these 35 hospitals, physicians independently control professional fee revenues;
- 11 are principal teaching hospitals, 21 are associated teaching hospitals, and six are independent teaching hospitals; there is a median of 12 graduate medical education programs per hospital.

These factors singly and in combination influence the effect that a change in payment methods may have. For example, hospital-school educational association is an important factor since the closer the association, the more likely that professional patient care revenues will be used to support other faculty and other activities.

EVALUATION OF PAYMENT METHODS AND THEIR EFFECT ON SAMPLE INSTITUTIONS

Six payment methods -- conventional fee, IL 372, Section 227 fee, Section 227 cost, unified, and lump sum -- were identified for study.

Conventional fee is the traditional method by which physicians are paid for professional services to Medicare beneficiaries where no simultaneous teaching is involved. The physician bills his charges to the patient or the carrier. If the carrier determines that the charge is "usual and customary" and within the prevailing charge levels, payment is made. It is assumed that the physician, himself, provided the services to the beneficiary.

IL 372 fee is a modification of the conventional fee payment method that is designed to fit the teaching setting where a house officer under the supervision of the teaching physician may provide professional services to the patient. The teaching physician actually bills the charge to the patient or the carrier. IL 372, itself, describes the conditions under which services must be provided in order to be determined "personal and identifiable service" to the patient or "personal and identifiable supervision" of the house officer in his provision of services to the patient. This is the current guideline for determining when payment should be allowed teaching physicians for professional services to Medicare beneficiaries.

Section 227 fee as proposed tightens the IL 372 criteria for eligibility for fee payment, and for other than emergency cases requires a preadmission relationship between the physician and patient. Presumptive tests based on patient liability are established for determining in which hospitals or hospital settings physicians can automatically be paid on a fee basis. Where hospitals or physicians fail to meet these presumptive tests hospitals can elect to be paid on a cost basis for physician direct patient care services to Medicare beneficiaries.

Section 227 cost was promulgated on an interim basis under regulations implementing Section 15, PL 93-233. Under this method of payment, hospitals can be reimbursed at reasonable cost for direct physician services to Medicare beneficiaries, provided that all physicians who render services in the hospital either elect to be paid in this way or agree not to bill charges.

The unified payment method allows for payment on a charge basis for direct patient care services of house officers and teaching physicians in teaching hospitals. Payment is made for the services rendered without regard to whether they are delivered by a teaching physician or a house officer. The house officers are employees of a physician organization. The physician organization receives and controls all professional service revenues, compensates its members fully, and includes a broad spectrum of specialty and subspecialty services. Under the pure form of this payment method, all house officers and teaching physicians would be supported by professional service revenues, Part B in the Medicare context.

The lump sum payment method allows for negotiated payment for professional services to a beneficiary group. The negotiated agreement establishes the services to be provided, the amount of payment, who will provide the services, and describes the patient group without necessarily enumerating the population of the group or the services to be provided to its members. It permits prospective payment for professional services and negotiation of the conditions which must be met in the provision of care.

Each payment method was evaluated to determine the extent to which it would satisfy congressional concerns and how it would affect teaching physician compensation and activities, institutional organization and financial support, graduate medical education, and patient care.* For analytic purposes, it was assumed that each payment method would be applied in all teaching hospitals. The analysis shows that no single payment method can satisfy fully the congressional concerns or avoid adverse effects on graduate medical education in the United States.

Conventional fee, the basic physician payment method of the Medicare program, is not suited, without special conditions, to the teaching hospital and the joint activities of education and patient care. The unified and lump sum payment methods are little known and not in use in the Medicare program. Therefore, although these three payment methods are analyzed in Chapter 6, Part II, they are not discussed here. However, the steering committee's recommendations include the unified payment method with strict criteria as a usable model and the lump sum and other payment methods as experimental models. The major effects of the IL 372, Section 227 fee, and Section 227 cost payment methods are summarized below.

---

*The analysis and evaluation of each payment method is in Chapter 6, Part II.

IL 372 Payment Method

IL 372 is the currently used fee-based method of payment for the professional services of teaching physicians in the teaching setting. It is distinguished from the conventional fee-for-service method (used to pay physicians in non-teaching settings) by a set of criteria which define the attending physician relationship. Where this attending physician relationship is established, Medicare pays on a reasonable charge basis where the beneficiary receives services rendered by interns and residents under the personal direction of the attending physician, or from the physician himself. Beneficiaries may receive patient care services from house officers (reimbursed under Part A) even though the full requirements for charge payment of the supervising physician are not met.

As noted in the legislative history, IL 372 has only partially satisfied the concerns of Congress. The extent to which it has satisfied them is largely a function of improved understanding of and ability to meet its requirements on the part of teaching physicians. Problems remain, particularly because IL 372 is not well understood by all parties. It was found that carrier interpretation of IL 372 varies, as does interpretation by affected physicians and institutional providers.*

Section 227 Fee Payment Method

As the substitute for IL 372, the suspended Section 227 fee payment method set out much stricter criteria for an attending physician relationship. The additional criteria included a prior patient-physician relationship and retrospective demonstration that the hospital or physician had billed and collected fees for physician services from at least 50 percent of the patients in the same setting. Where these criteria are not met, Section 227 includes a cost method of payment which is required if payment is desired for physician services to beneficiaries.

Data from field observations indicate that most teaching physicians who can meet the attending physician criteria of IL 372 can meet the physician role test (Test A) of Section 227. However, since hospitals rarely bill and collect fees for professional patient care, and physician billing and collection records are inadequate for providing retrospective proof of billings and collection rates by payor, few teaching physicians could demonstrate that they meet the patient liability test (Test B).

Meeting the criteria for attending physician status does not assure:

- that Medicare beneficiaries will receive private care, if that is paid for, since documentation of the medical records remains the primary source of audit information;

---

*For a more detailed discussion of carrier administration, see Chapter 5, Part II.

- promotion of a single class of care in the hospital since cost-based payment is provided when the attending physician criteria are not met; or
- that the payment method will be comprehensible and acceptable to carriers, physicians, and institutional providers; or, that there will be uniform application of regulations and instructions.

The availability of cost-based payment for physician services in particular settings within the hospital when the attending physician criteria are not met offers the potential for:

- creating classes of patients within the same hospital based on source of payment for physician services;
- continuance of private and non-private settings within hospitals.

The attending physician criteria in Section 227 place equal emphasis on the nature of the patient-physician relationship and the quality of the physician's billing and collection system. These criteria, especially the patient liability test, would result in a high failure rate of physicians who try to meet the criteria for an attending physician on the basis that they are providing personal and identifiable services to beneficiaries. If the physicians who fail to meet the criteria desire payment for these services, they must go to a cost-based method of payment. The effects of such a shift are described below.

Section 227 Cost Payment Method

The cost method presently available to teaching physicians is an elective method of payment promulgated through interim regulations implementing the cost provision of the suspended Section 227 as authorized by Section 15 of PL 93-233. Where elected, cost payment must be effective for an entire institution and no fee billing (except on special units) is permitted for patient care services to Medicare beneficiaries in the institution. All reimbursement for the services of teaching physicians and house officers is made on a reasonable cost basis. In the sample institutions which have elected the cost method, professional service revenues have increased. In some cases, before changing, the Medicare program paid for the physicians' direct patient care services on the basis of charges related to costs; that is, physician salaries. Since such charges were subject to the 20 percent Part B coinsurance provisions, the hospital's income on this basis generally would not equal actual costs. In other cases, little or no income was generated through fees because billing and collection mechanisms were ineffective or were prohibited or restricted by local or state law. Also, where some hospitals attempted to bill for attending physician services, the criteria for the attending physician relationship were inadequately documented in the medical records and payment was not made.

Under the elected cost method, the effects have been:

- increased revenue for physician services and, correspondingly, increased program costs;
- physicians are not required to provide personal and identifiable services, and there is no monetary incentive for them to provide such services (those who do are paid the same as if they did not);
- receipt and control of professional service revenues pass to the institution;
- physicians are not required to provide patient care to program beneficiaries, nor is there a monetary incentive for them to do so or to maintain or increase productivity.

In institutions or parts of institutions which would be required to go on a cost-based method of payment because the physicians could not meet the Section 227 criteria as attending physicians, there would be the following effects:

- professional service revenues might decrease, and correspondingly, costs to the Medicare program would be reduced;

- in institutions where faculty are supported in some part by professional fee revenues, a reduction in revenues could result in the need to identify replacement revenue, reduce faculty, reduce faculty time in house officer supervision, or reduce the number of house officer positions;

- any reductions in the number of house officer positions might fall in the needed primary care specialties because training in ambulatory care is expensive but contributes relatively little to hospital revenues;

- except for voluntary physicians who cannot charge for their services, physicians would be required to become direct employees of hospitals or enter into a contract for services to the teaching hospital to establish the cost of their services;

- some teaching physicians may elect not to work in this kind of teaching setting; and

- additionally, the last three effects described above for hospitals which have elected cost payment could also be expected to occur.

From the standpoint of congressional concerns, cost-based payment is appropriate where personal and identifiable services are not provided.

The structural effects of changes in payment methods could precipitate fundamental reorganization of graduate medical education in the United States. However, much of the initial reaction to Section 227 focused on the dollar differences that would result from payment under the cost method as opposed to payment under a fee method.

These differences are difficult to compute for several reasons. Fee revenue data are often unobtainable, and were available in total and by payor for only a small number of the 81 non-federal hospitals studied. Cost data are easier to obtain through the Medicare cost reports. Depending on the accounting practices used in each hospital, however, the cost data may not be directly comparable or easily assembled into a figure that accurately represents the cost of teaching physician services provided Medicare beneficiaries. It is difficult, too, to compare fee revenue data within states or from one part of the country to another since different carriers determine usual and customary charges and prevailing fee screens for teaching physicians differently.

In the following analysis, the costs for physician services include factors which approximate the costs of practice for physicians outside institutional settings. This permits comparison of the costs to the Medicare program under different payment methods and increases the accuracy of the dollar difference computations presented for the sample institutions where data were available.*

Comparisons of Dollar Differences

The effects on dollar flows of changing from cost to charge payment, or vice versa, for patient care services are presented for the two general cases. Since five of the payment methods analyzed are charge-based, the differences between them relate either to the conditions under which teaching physicians can be paid on a fee-for-service basis (conventional fee, IL 372, and Section 227) or to the nature of the structural arrangements for paying them (unified and lump sum); the sixth payment method is cost reimbursement. Determining the revenue differences among the five charge-based methods could not be done accurately and was not pursued.

Table 3 shows the estimated revenue change for seven sample hospitals currently receiving cost or compensation-related charge reimbursement for physician services, should they be paid for these services on a fee-for-service basis. For some of the hospitals, total professional service revenues under a charge method of payment would be several times the estimated cost reimbursement; for others it would be less. Generally, the large increases would be to small hospitals in which the bulk of patient care is provided by house officers and, thus, teaching physician costs are quite low.

Table 4 shows current Medicare revenues to faculty practice plans in six medical schools where all faculty professional service fees go into the plan. Estimated revenues are shown for each school under two methods of computing cost. Cost computation 1 covers only physician salaries and fringe benefits (estimated at 15 percent). The formula is: professional service cost equals total physician compensation times the proportion of physician time spent in patient care and related activities. Patient

---

*For details of these computations, see Chapter 6, Part II.

TABLE 3. ESTIMATED MEDICARE COST REIMBURSEMENT FOR PHYSICIAN PROFESSIONAL SERVICES AND POTENTIAL REVENUES UNDER FEE-FOR-SERVICE PAYMENT, FY 1974, HOSPITALS ON COST

Hospital	Estimated cost reimbursement for physician services, Title 18 (thousands)	Potential revenues under fee-for-service payment (thousands)	Percentage change in Revenues
A5	384	594,729	+ 55
D4	65	104	+ 61
D5	21	146	+ 600
B2	362	239	- 34
G3	658	590	- 10
AA a/	16,956	278,507	+1,014
S5	376	345	+1,543

Source: Institute of Medicine field data.

a/This hospital has two departments. One department currently bills fee-for-service; the above computations apply only to the cost department.

Table 4. MEDICARE FEE REVENUES AND ESTIMATED REVENUES UNDER TWO COST COMPUTATIONS, MEDICAL SCHOOL PLANS, FY 1974

School	Medicare fee revenues		Cost computation 1 a/		Cost computation 2 a/	
	Amount ($ thousands)	Percent total fee revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues
A (A1)	948	12	825	-13	1,235	+30
B (B1,B6)	864	20	595	-31	897	+ 4
C (C1)	821	14	471	-43	942	+15
J (J1, J3) b/	1,727 c/	20	1,227	-30	2,455	+42
N (N1)	557	10	593	+ 6	890	+60
P (P1)	777	14	1,009	+30	1,514	+95

Source: Institute of Medicine field data.

Note: Dollar amounts rounded to nearest $1,000; percentages rounded to nearest percent.

a/Cost computation 1 covers physician salary and fringe benefit (15 percent) costs only; cost computation 2 in addition includes other costs in support of patient care. See text for more detailed description of computation.

b/J has departmental practice plans; all other institutions have school-wide practice plans.

c/Estimate.

care time is obtained from the activities analysis and includes pure patient care, half of joint teaching and patient care, patient administration, and an allocated portion of professional development and general administration. In these institutions, the proportion of time in these activities varies from one-third to almost one-half.

Computation 2 includes not only physician costs computed as above, but also some other costs associated with the provision of professional services to patients such as billing and collection, office space for practice, and insurance.

Depending on the availability of data, Medicare's share of costs in each case is based on either the ratio of Medicare patient units to total patient units in the principal teaching hospital, or the ratio of Medicare fee revenues to total fee revenues for the practice plan.

Most of these schools would lose a substantial proportion of revenues under computation 1, although one would gain 30 percent in professional service revenues.

Table 5 shows similar computations for the six sample hospitals which bill charges for physician services. Under both computations, revenues to three of the hospitals would decrease; in three, they would increase. In the latter hospitals only a few patients are billed fees.

The results of these computations show that changes in the method of payment would have mixed effects on the professional service revenues in these institutions. No clear-cut pattern of loss or gain can be discerned, except that institutions where professional service revenues have been low in relation to the amount of service provided generally would receive increased revenues under cost reimbursement.

This mixed pattern of change in institutional revenues also makes it difficult to discern any significant difference in the cost to the Medicare program under either a cost or charge payment method. Since cost reimbursement requires no out-of-pocket beneficiary payment, the same services will cost the program more if the allowable costs to the institution approach full costs.

The difference in costs to the Medicare program under the cost and charge methods of payment is best stated as a percentage change relative to amounts paid on an allowable charge basis in Fiscal Year 1974 to the sample institutions where data are available. Under the cost method, more hospitals would gain professional service revenues than lose, and the increased cost to the Medicare program is estimated to be two percent greater than the amount paid under the charge method in Fiscal Year 1974.

TABLE 5. MEDICARE FEE REVENUES AND ESTIMATED REVENUES UNDER TWO COST COMPUTATIONS, HOSPITALS ON CHARGES, FY 1974

Hospital	Medicare fee revenues		Cost computation 1 a/		Cost computation 2 a/	
	Amount ($ thousands)	Percent total fee revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues
G2	5,190	21	2,087	- 60	3,131	- 40
K6	943	32	400	- 57	599	- 36
G1	955	18	382	- 60	573	- 40
A2	150	28	168	+ 12	253	+ 68
J5	136	30	185	+ 36	278	+104
A3	49	18	225	+359	338	+596

Source: Institute of Medicine field data.
a/See note a/, Table 3.

These attempts to make comparisons between the program costs of physician services under cost and charge are separate from any consideration of whether it is better public policy to pay for the costs of those services from Part A or from Part B. This question does not affect comparison of the costs to the Medicare program of charge or cost payment for the patient care services of teaching physicians and is not addressed in this study.

No one of the payment methods investigated avoids adverse impacts and is fully responsive to the congressional concerns, and no one of them offers clear-cut cost savings or increases to the government programs. The steering committee's payment method proposals are directed at the congressional concerns and toward reducing adverse effects on teaching physician compensation and activities, institutional organization and financial support, graduate medical education, and patient care.

RECOMMENDATIONS

The steering committee has developed recommendations that recognize congressional concerns about appropriate and equitable payment of teaching physicians for professional services in teaching hospitals. The 81 non-federal sample hospitals studied are representative of the 1,250 non-federal teaching hospitals in the nation. Detailed studies in the sample hospitals and related medical schools have found great diversity in the institutions, the physician compensation arrangements, the control of professional fee earnings and expenditures, the organization of patient care, and the involvement in graduate medical education. The recommended payment methods -- an elective cost method and a unified method of payment -- answer the concerns of Congress, but neither can be applied to a large proportion of teaching physicians at the present time. In the opinion of the steering committee, under current circumstances, the best that can be done in many teaching hospitals is to make important but nevertheless incremental improvements of the methods already in use.

The steering committee believes that, for these recommended payment methods to be effective, other third party payors should adopt them.

The steering committee does not intend the recommended payment methods to be selected unilaterally by teaching physicians and teaching hospitals. Changes in the payment method applicable to a particular institution should not be effected without an agreement with the carrier and intermediary on behalf of the Social Security Administration that would include the timing and any conditions incident to the change.

RECOMMENDATION 1. A COST-BASED METHOD OF PAYMENT

The elective cost reimbursement payment method currently in effect under Section 15, Public Law 93-233 should be continued. Minor modifications are recommended in the following guidelines:

- In hospitals electing cost, fee-based payment should be allowed for special care units, such as burn units or poison centers, that are open to the community.

- Payment for physician services should reflect as closely as possible the full costs of providing the services.

- Under the cost payment regulations issued under Section 15, Public Law 93-233, inclusion of payment of the imputed value of volunteer services should be continued because:
  - Volunteers provide valuable uncompensated patient care and teaching services to graduate medical education that would otherwise have to be obtained from paid physicians.
  - It will allow the hospital to improve patient care and provide some educational and research benefits to its programs.
  - Loss of volunteer teaching physician services in hospitals with mostly non-private patients could deny access of non-private patients to the services of community physicians, some of whom offer specialties not included in the hospitals' employed physician staff.

- Under the same cost regulations, there should be the following modification: The ceiling of $30,000 (for fiscal years starting July 1, 1973, and subject to revision for subsequent years) on the imputed value of a volunteer teaching physician's services should be changed to the average salary for full-time physicians in the area or the VA compensation for full-time physicians if an area average is unavailable.

Institutions should be allowed to shift from cost to an entirely fee-based payment method by notification of the carrier and intermediary that all of their physicians who meet the proper criteria will begin billing on a fee basis for their services at the beginning of the next cost reporting period. At the close of a six-month period, the carrier would conduct an audit of the care provided; if the audit results were deemed satisfactory, and fee billing allowed, the two year phase out of cost reimbursement for supervisory and teaching services would begin with the next accounting period. (See Recommendation 3).

RECOMMENDATION 2. A UNIFIED METHOD OF PAYMENT

The unified method is appropriate to institutions where there is a physician team approach to patient care and graduate medical education. Present knowledge and understanding of this method of payment suggest that it is responsive to the concerns of Congress and also appropriate to the ideals of graduate medical education. All covered services of licensed physicians (teaching physician and house officer) to Medicare beneficiaries would be paid for on a reasonable charge basis. House officers who have not completed the first year of post-M.D./D.O. training (or the second depending on state licensure requirements) are to be paid on a cost reimbursement basis to the hospital. The proposed conditions for this payment method limit its application to teaching institutions where there is a close relationship between teaching physician and house officer so that the conditions for personal and identifiable service are met by the team regardless of who actually performs the service.

Characteristics of the Unified Payment Method

- Fee billing for services rendered (a daily or capitation rate for physician services may be more appropriate).
- Whether the teaching physician or the house officer delivers the service should not affect the level of payment for the service provided.
- No cost reimbursement for house officer salaries, except for house officers who have not completed the first year of post-M.D./D.O. training (or the second depending upon state licensure requirements).*
- All payments would be made on an allowable charge basis and out-of-pocket costs to beneficiaries would increase because of the co-payment provisions in Part B.

Institutional Conditions for the Unified Payment Method

- There must be a closed panel of teaching physicians in an organized group who receive all of their compensation from the organization, who will enter into a relationship with the house officers.
- Teaching physician practice must be limited to one or two hospitals.
- The closed panel must include skills necessary for a broad spectrum of medical and surgical service within the institution(s). (See Recommendation 3, point 7.)
- To adopt the payment method the institution must have no graduate medical education programs on probation but may have them on provisional approval.

RECOMMENDATION 3. A FEE-BASED METHOD OF PAYMENT

A fee-based method of payment is appropriate, although not necessarily the only appropriate method of payment for teaching physicians, only when they provide personal and identifiable services to program beneficiaries or directly supervise the provision of such services by house officers. Medicare's split financing and the nature of graduate medical education call for special definition of "personal and identifiable." However, the payment method alone cannot assure that personal and identifiable services will be provided and the program's and the beneficiaries' interests must be protected through Professional Standards Review Organizations, carrier audit practices, and other appropriate mechanisms.

---

*Some additional direct payment of a portion of such house officer salaries might also be considered if necessary to adequately support the educational mission and reduce some of the shift of costs to the beneficiaries.

With one exception, the role test as described in the proposed Section 227 regulation is deemed appropriate as a test of whether personal and identifiable services are provided. The exception is the requirement for a pre-admission relationship between the physician and patient. This requirement does not recognize the fact that although a patient may not have been referred or admitted by his own physician, he may be indeed receiving personal and identifiable services from an attending physician.

Pre-admission or prior patient-physician relationship, however, is an appropriate "screen" for identifying situations where fee-for-service payment would be automatic. This screen appropriately applies to the physician and his provision of service, not to the institution and its ability to collect or demonstrate past collection of professional service fees as required in the proposed Section 227 patient liability test. Applied this way, the prior relationship screen meets the administrative purpose of the patient liability test which is to identify situations where it reasonably could be assumed that the physician role test was being met.

Guidelines for a fee-based method of payment should include:

- Phasing out cost-reimbursement for supervisory and teaching services in teaching hospitals where fees are paid, over a two-year period at the rate of 50 percent per year. At the close of the two-year period, no cost-reimbursement would be allowed for:
  - Supervision or teaching of house officers, except the director of medical education as noted below;
  - Regular or routine teaching physician service on general care nursing units; and
  - Administrative services of teaching physicians, except where there is a written agreement defining the specific services to be performed; for example, director of medical education, administration of a pulmonary function laboratory, cardiac catheterization laboratory, or the like.

- The Medicare Cost Report forms should be revised so that reimbursable costs for administration, supervision, and teaching of house officers will be reported as an identifiable item. This will permit monitoring of the phase out and assessment of its effects.

- Cost reimbursement for house officer salaries, fringe benefits, and related costs would continue.

- The prior or pre-admission relationship which is to be used as an adminstrative screen should be defined to include any of the following:
  - Patient was seen in attending physician's office prior to admission to the hospital;
  - Referral of the patient to an individual, a department, or the institution by an out-of-area physician;

  - Referral of an inpatient to another physician or department within the hospital; or
  - Emergency patients and out-of-area patients who are assigned to a teaching physician covering the hospital.

- The following physician role test (modified from the proposed Section 227 regulations)* should be adopted. The teaching physician:
  - reviews the patient's history and the record of examinations and tests, and makes frequent reviews of the patient's progress;
  - confirms or revises the diagnosis and determines the course of treatment to be followed; and
  - personally examines the patient on admission and sees the patient regularly thereafter during the stay; and
  - personally supervises treatment provided by interns, residents, or others to assure it is appropriate, and is present and ready to perform any services performed by a personal physician in a non-teaching setting when a major surgical procedure or a complex or dangerous medical procedure is performed; and
  - is recognized by the patient as his personal physician and is personally responsible for the continuity of the patient's care; and
  - is looked to by the patient to provide or arrange for any needed followup or post-hospital care.

- Within one year, reviews to determine whether personal and identifiable services are being provided to beneficiaries should be conducted in all hospitals in which small proportions of patients meet the criteria for pre-admission patient-physician relationship as described above.

- Institutions should be free to shift from any one of these three recommended payment methods to another, provided the conditions of that option are met. Timing and conditions of the shift must be negotiated with the respective carrier and intermediary. Under the recommended payment methods, all teaching physicians rendering service in a hospital would be covered by a single payment method, with exceptions as noted under Recommendation 1. Mixed and geographic settings for different payment methods within a hospital would not be recognized.

As a result of this recommendation the sample hospitals which currently claim cost reimbursement for supervisory services of teaching physicians would incur a loss to the institutions over two years totalling some 13 to 18 million dollars if they remain on a fee basis.

RECOMMENDATION 4. DEMONSTRATION AND EXPERIMENTAL PAYMENT METHODS

Three payment methods are recommended for demonstration and experiment in the Medicare and Medicaid programs. Each proposal for a demonstration or experimental payment method should include a plan for evaluating the payment method which includes its effects on the program beneficiary, the physician, the institutional provider, and the program itself.

---

*Part A, Intermediary Manual, DHEW, No. A3141.5, July 1973.

- The unified method of payment (Recommendation 2) with less restrictive conditions and criteria as may be proposed by physician groups or institutions and agreed to by the Social Security Administration on a demonstration and experimental basis.

- The lump sum method is used widely to provide payment for professional patient care services to specific patient groups, for example, crippled children under Title V, Maternal and Child Health. This method of payment involves a negotiated contractual relationship between physicians or institutional providers and the payor. The contract specifies the services that will be provided, the amount that will be paid for them, who will provide them, and may enumerate the patient group as well as describe its characteristics. On an experimental or demonstration basis, the lump sum method of payment offers the features of a negotiated rate for services to a defined patient group, payment in a known amount for physician services, and annual negotiation which can reflect payor satisfaction or dissatisfaction with the services received and physician satisfaction or dissatisfaction with the amount and conditions for payment. The lump sum payment method can provide an intermediate step for the physician group wishing to change from cost to fee-based payment or as a probationary payment method to be required by the payor when conditions for fee-based payment are not fully met. Uncertainties, which may result in possible serious disadvantages, with respect to the lump sum method preclude recommendation for its full adoption. These uncertainties include definition of the patient group, definition of an appropriate physician group, assurance of teaching physician participation in the provision of care, and definition of the appropriate relationship between the physicians and the hospital.

  Services of both house officers and teaching physicians could be paid on the basis of costs or charges or both.

- A fee-based method under which licensed residents in family practice, general practice, pediatrics, and general internal medicine who have completed either the first or second year (where a second year is required for licensure) of post-M.D./D.O. training would be certified by the director of the training program as qualified to perform independently certain specified services or procedures in the hospital outpatient department. The resident could be paid for these services just as any fully trained physician would be and he would be the attending physician. There would be no cost reimbursement for salaries of these residents and no consultant fee paid for teaching.

RECOMMENDATION 5. Section 227 of Public Law 92-603 should not go into effect on July 1, 1976. Until new legislation can be enacted and attendant regulations issued, Section 227 of Public Law 92-603 should be further suspended and authority to continue cost reimbursement for physician services under Section 15, Public Law 93-233 should be extended.

RECOMMENDATION 6. Administrative priority should be given to more uniform application of the Medicare regulations and guidelines in teaching hospitals across the country. Efforts to improve administration should include:

- A determination of the priority to be assigned administration of teaching physician payment methods in relation to other carrier activities by the Bureau of Health Insurance and the carriers;

- A mechanism to improve communications between carriers so that implementation strategies can be exchanged;

- Selection of teaching hospitals for audit by a sampling method that reflects the volume of teaching patients in the institution who are program beneficiaries; and

- Detailed instructions by the Bureau of Health Insurance on sampling procedures and specifications of acceptable and unacceptable medical record documentation for establishment of an attending physician relationship.

RECOMMENDATION 7. To move toward more uniform treatment across programs, the recommended payment methods for teaching physicians should be given serious consideration by state Medicaid programs and other third party payors.

RECOMMENDATION 8. Proposals for future changes in the method of payment should be accompanied by estimates of the dollar differences to result from the change, the effects on the structure for receipt and control of professional service revenues, and the effects on the beneficiary, institutional provider and professional, and the health insurance program.

IMPLICATIONS OF THE RECOMMENDED PAYMENT METHODS

The implications of the recommended payment methods can be extended to the universe of teaching hospitals and teaching physicians because they were developed in light of data collected in field studies in a sample of teaching hospitals that represents the diversity of institutional organization and financial support, teaching physician compensation and activities, graduate medical education, and patient care organization. The proposed payment methods were designed to fit the four patterns of patient-physician relationship that characterize graduate medical education at the present time. In some hospitals, there is a patient-physician relationship which is similar to the individual physician/individual patient pattern of most non-teaching hospitals. In other hospitals, there is a physician team/individual patient relationship in which the formally recognized attending physician is less involved in the patient's direct care than are the house officers on the team. In a larger number of hospitals than is included in either of the above mentioned groups, both patterns occur. In some hospitals, the physician team/individual patient relationship is conducted by an integrated team in which each member provides only the service that his particular stage of training qualifies him to perform and the formally recognized attending physician is involved fully in the patient's direct care.

The recommended payment methods recognize this diversity and meet the congressional concerns about Medicare sometimes having paid for a type of care not received by its beneficiaries and sometimes having paid twice for the same service. The recommendations also allow for movement toward methods which provide for a single class of care for all Medicare beneficiaries within a particular hospital, providing, for example, the incentive of simpler administration by eliminating the need to document personal and identifiable service criteria under the cost and unified methods.

In the institutions where the physicians elect cost reimbursement, all physician services will be paid on a cost basis. The institutions and physician organizations which can meet the criteria for the unified method of payment will be paid on a charge basis for all services. Under the unified method, the institution or physician organization is, in effect, assuring Medicare that necessary patient care services are being provided to beneficiaries by appropriately qualified physicians. In both cases, Medicare is assured that its beneficiaries are receiving the care that is paid for.

In contrast to the institutional or organizational assurances under the cost and unified methods, the fee-based method (Recommendation 3) requires that each teaching physician meet certain requirements for payment on a charge basis. If they meet and document these requirements, fee payment is appropriate; if they do not, no payment would be made. Although house staff salaries, fringe benefits, and related costs would be cost reimbursable, costs for supervisory and teaching services of physicians would not be reimbursed following the close of a two-year phase out period. Thus, the fee method would require a decision to provide the same services to all beneficiaries on a fee basis if the criteria were met and documented; on a cost basis if the physicians so elected; or on a unified method if the conditions were satisfied.

From the standpoint of program administration, these payment methods offer the potential of future reductions in costs of administration and administrative activity in hospitals where physicians elect to be paid under the cost or unified method and where the prior contact screen of the fee method is met. The administration of the fee method will benefit from the experience gained in the administration of payment under IL 372 and from adoption of the suggestions made under Recommendation 6. In the future, administration should become simpler, barring fundamental changes in the law, as the opportunities are reduced for confusion over when it is appropriate for teaching physicians to be paid a fee for the services to beneficiaries under these recommended payment methods.

It appears that the recommended payment methods, if they are applied appropriately, will meet the congressional concerns, at least in part, and will have small, if any, adverse effects on teaching physicians and teaching hospitals. Yet, the directions for resolution of the teaching physician problem have been established and the mechanisms for achieving that resolution are at hand.

REFERENCES

Chapter 1

[1] U.S. Congress, Senate, *Social Security Amendments of 1972*, S. Rept. 92-1230 to accompany H.R. 1, 92d Cong., 2d sess., 1972, p. 195.

[2] U.S. President, "Services of Physicians Supervising Interns and Residents" *Federal Register*, 38, no. 138, sect. 405.521(c)(3)(i) and (iii), 19 July 1973.

Chapter 2

CHANGING THE SPECIALTY AND GEOGRAPHIC DISTRIBUTION OF PHYSICIANS

The Social Security Act Amendments of 1973 direct the Secretary of Health, Education, and Welfare to:

> ...arrange for the conduct of a study or studies concerning...the extent to which funds expended under [Titles XVIII and XIX] are supporting the training of medical specialties which are in excess supply....how such funds could be expended in ways which support a more rational distribution of physician manpower both geographically and by specialty....

To respond to the charge, the study group explored the following questions: How can "excess supply" be determined? What goals can be set to achieve a more rational distribution of physicians among specialties and geographic areas? What tools are available through federal financing programs which can influence the specialty and geographic distribution of physicians? What other federal policies might be adopted to bring about change in the present distribution of physicians?

This chapter addresses each of these questions. It begins with a discussion of the problems encountered in trying to define an "appropriate" supply of physicians by specialty and geography. Second is a description of the results of seminars held to determine goals for a more rational specialty distribution of physicians. Third is an examination of trends in the supply of residency positions in the different specialties to determine if they are consistent with present and future physician manpower goals. The chapter concludes with a discussion of specific policy measures for achieving these goals.

Since data about determinants of physician choice of specialty and geographic location are lacking, many of the recommendations and suggestions are based on judgments. A major recommendation calls for a commission of representatives of private organizations and the public to monitor physician manpower distribution and to determine limits on residency positions by specialty. These limits are to be applied by the Liaison Committee on Graduate Medical Education (LCGME) and the Committee on Postdoctoral Training of the American Osteopathic Association through their accreditation powers to control the number of positions in each training program.

DEFINING APPROPRIATE PHYSICIAN DISTRIBUTION FOR THE UNITED STATES

The United States has fewer contact physicians* and more specialists per population than any other developed country. In 1973, 46 percent of physicians in the United States could be designated as contact physicians; in the National Health Service of England and Wales, 57 percent are so designated (Table 1). Although Canada has a similar percentage of contact physicians, a greater proportion of Canadian physicians are in general and family practice. The proportion of physicians in a particular specialty was lower in Canada and only in orthopedics and anesthesiology were the British proportions of specialists greater than the United States. Although the health care systems of the countries listed in Table 1 are organized and financed differently from that of the United States, the dependence of the United States on physician specialists is nonetheless striking. Analysis of physician staffing patterns in organized health care systems, including health maintenance organizations (HMOs), showed great variations in specialty distributions from one system to the next. There is no agreement among organized medical care systems on the optimal distribution of physicians to serve a given population.

Within the United States, physicians of all specialties are distributed unevenly among the fifty states and the District of Columbia.** In Mississippi and South Dakota, there are fewer than 80 patient care physicians per 100,000 population in active practice; in New York, California, Massachusetts, and the District of Columbia, the active patient care physician-to-population ratios far exceed that of the nation as a whole. Within a single state, the disparities may be as great: in Manhattan there are more than 800 physicians per 100,000 people, and in Lewis County, New York, there are only 52 physicians per 100,000 population. But even within Manhattan, there are neighborhoods where very few physicians practice.

---

*Throughout this chapter, "contact physician" includes general and family practitioners, general internists, and general pediatricians. Although this group of physicians delivers most primary care (longitudinal, first-contact medical care in the presence and absence of disease), other physician specialists help to meet the primary care workload. For a definition of primary care, see glossary.

**See Chapter 7, Part II.

TABLE 1. PERCENT DISTRIBUTION OF PHYSICIANS IN THE UNITED STATES, ENGLAND AND WALES, AND CANADA BY SPECIALTY (1973)

Specialty	United States	England and Wales	Canada
General and family practice	25.4	54.0	40.6
General internal medicine	14.4	1.5	6.5
General pediatrics	6.0	1.9	2.8
Total contact physicians	45.8	57.4	49.9
Psychiatry	7.1	4.8	4.4
General surgery	10.7	6.8	8.9
Obstetrics and gynecology	6.6	4.1	3.3
Orthopedic surgery	3.3	4.1	NA
Ophthalmology	3.4	1.6	3.3
Anesthesiology	3.9	5.2	3.6
Radiology	4.8	2.5	3.1
Other	14.4	13.5	23.5

Sources: G.A. Roback, _Distribution of Physicians in the U.S._, 1973 (Chicago: American Medical Association, 1974); American Osteopathic Association, _1974 Yearbook and Directory of Osteopathic Physicians_ (Chicago: American Osteopathic Association, 1974); World Health Organization, _World Health Statistics Annual, 1970_, 3 (Geneva, 1974).
NA: Not available.

These differences in physician density can be explained in part by the presence of high-density areas of major tertiary care medical centers which serve patients who reside outside the state or county. The major reasons for density differences, however, lie in the complex set of factors that make some areas of the country particularly attractive to physicians and others particularly unattractive.*

Although available data provide some external and internal comparisons of physician distribution, they do not indicate what distribution is most desirable. Determining the "right' distribution of physicians according to specialty and geography is a complex and imprecise process. Research methods on this topic and the data base necessary to support research on appropriate physician distribution are in the early stages of development. Ideally, physician manpower needs should be determined from epidemiological data that indicate "needs" of the population. Yet this approach cannot be used because there is no agreement on needs; furthermore, the "caring" function of physicians is not taken into account in this formulation.

---

*See Chapters 9 and 10, Part II.

In addressing goals for future physician distribution, it is important to consider the relationship between physician distribution and other components of the health care delivery system. For example, the desirable physician specialty distribution may be influenced by the availability of non-physician allied health professionals. If specific types of allied health professionals can perform some physician tasks, thereby increasing the productivity of the physician in delivering those services that only a physician is qualified to provide, then physician manpower policy should be modified to accommodate such substitution.

The organization of medical services also will influence public policy in physician manpower distribution. A geographic area that has a highly regionalized medical care system with clear lines of referral may require fewer specialists than a less highly organized area. A multispecialty group practice may have different practice patterns than a physician in practice alone. To reach decisions on the appropriateness of physician specialty distribution, therefore, more information is needed on the practice patterns and productivity of specialists in different systems and in different geographic areas, including the amount of primary care specialists deliver. Studies conducted by the American College of Surgeons and the American College of Cardiology provide some evidence that both surgeons and cardiologists spend significant amounts of time delivering non-specialty care.

Determining goals for specialty distribution also requires that value judgments be made. For example, people in the United States traditionally seek a specialist, rather than a generalist, for many medical problems that may not require a specialist's attention. This cultural pattern and possibilities for modifying it must be considered in the establishment of physician manpower goals.

Efforts to improve the health care system by improving physician distribution must also take into account the financing of health care services. If there are segments of the population that do not have ready financial access to physician services, 1/ then merely changing the physician distribution would not appreciably improve the health services received by these people. There are limits to what can be achieved by changing or increasing the supply of physician manpower without also changing other influences on the health care system.

Another issue that complicates the task of developing goals for physician distribution is that there is no direct relationship between the services generated by the health care system and the health status of the population it serves. Above a certain level, the addition of resources for direct medical services may not significantly improve the health status of the population. 2/

In addition, the value to the patient of the "caring" as opposed to the "curing" function of the physician cannot be measured. With adequate access to a physician, the caring aspects of medical services can be made more widely available.

Many other factors contribute to the health status of the population. Income, lifestyle, environment, education, housing, nutrition, health education, and the availability of public health services may have more effect on health than medical services. 3/ The direct effect of changes in one variable, such as physician distribution, on the health status of the population is blurred, both by the influence of these other determinants of health and by other aspects of the health care system. Because the complex interrelationship among the many factors which contribute to the health status of the population makes it difficult to measure directly the effect of any one factor, the manpower analyst must rely on indirect measures of the effect of any given physician distribution.

DETERMINING GOALS FOR SPECIALTY DISTRIBUTION

With full recognition of the difficulties inherent in trying to estimate appropriate physician manpower needs, the appropriate total supply, and the total for each specialty, the study group conducted a series of seminars to collect the judgments of experts in the health care field. There was general agreement among all panels that the proportion of the physicians classified as contact physicians should be increased, and the proportion of physicians in some specialties should be reduced. Based on results of the manpower distribution panels and an analysis of the literature, the steering committee reached the conclusions summarized below.

Specialty Distribution

- There should be an increase in the total number and proportion of contact physicians as one approach to increasing access to primary care. Merely increasing the percentage of physicians in these specialties will not necessarily increase patient access; financial and institutional barriers to ambulatory care must be removed where they exist.

- There should be no further increase in the ratio of general surgeons and other surgical specialists to population. The only practical way to avoid such an increase is to decrease the number of physicians entering training programs in the surgical specialties.

- Because information is lacking on the practice patterns of physicians in the non-surgical specialties, it is not yet possible to address specialty redistribution in many areas of medicine. The absence of recommendations in these areas means only that further study is needed.

- Physician manpower distribution in the United States should be monitored and evaluated for each specialty. Such a monitoring system must be combined with a mechanism to effect a redistribution of physicians among specialties if there is evidence of maldistribution.

Geographic Distribution

- Patient access to contact physicians should be improved by increasing the number of contact physicians in critically underserved areas,* assuring financial access to ambulatory care in all areas, and adopting alternatives to extend the geographic range a physician can serve.

- Because of the complex relationship between physician specialty distribution and the health care of the population served, the study group was not able to resolve whether there is a geographic maldistribution of non-contact physicians.

MODELING PHYSICIAN SPECIALTY DISTRIBUTIONS**

These conclusions were based in part on the results of seminars held to explore methods for determining the optimal distribution of physicians, both generalists and specialists, for a specific geographic area. Panelists representing different disciplines were given all relevant available information, and were asked to develop an optimal physician specialty distribution for one of four states - Arizona, Georgia, Michigan, or Oregon. Each panelist independently determined an optimal physician specialty distribution for the state under consideration and was given the opportunity to modify his initial estimate after group discussion.

Data on the productivity of physician specialists and the extent to which specialists are engaged in nonspecialty practice which are available for only selected specialties 4/ and geographic areas, 5/ were most useful to the panelists.

There was a broad range of opinion on the optimal distribution of physicians by specialty for the four states. Although the panelists disagreed on the absolute optimal levels for physician specialty categories, there was agreement on the direction of desirable change from the current physician distribution. Changes suggested by the panelists were consistent with those of professional organizations which have examined the question of physician specialty distribution. 6/ All panelists favored increasing the numbers of contact physicians, and most panelists agreed that the numbers of some surgical specialists should be reduced. These suggested changes in the physician specialty distribution applied over broad ranges of total physician supply thought to be optimal by individual panelists. Although it is predicted that the total physician-to-population ratio in this country will increase during the next several decades, the recommendations for directions of change in physician specialty distribution are applicable to the expanded physician manpower pool. When these suggested directions for change in the physician specialty distribution are contrasted with the projections of future specialty distribution which predict an exaggeration of the current specialty imbalance, the need for changes in strategy for training physicians becomes apparent. The panelists were asked to consider the degree to which allied health professionals could substitute for physicians in some specialties; there was general agreement that there were insufficient data on which to base such estimates.

---

*HEW had designated 981 counties and areas as underserved as of February 1975.

**See Chapter 8, Part II for a detailed description of the modeling panels.

Trends in Training Positions

To achieve the goals for specialty distribution discussed above, the number of training positions in the contact specialties must be increased and those in surgery, and at least to some extent in subspecialty medicine, must be decreased.

Data from the Institute of Medicine's survey of teaching hospitals showed that in the period 1970 to 1974, the number of residencies in the contact specialties increased by 99 percent; the number of residencies in surgical specialties and medical subspecialties increased by 41 percent and 141 percent, respectively (Table 2). When total positions (internships, residencies, and fellowships) were examined, the trend was similar, although the increase in positions in contact specialties was slightly less.

In addition to trends in the absolute numbers of positions, it is necessary to examine contact specialty positions as a percentage of total positions. Survey data showed that in 1970, 25 percent of the residency positions were in contact specialties, five percent in medical specialties and subspecialties, 40 percent in surgical specialties, and 30 percent in other specialties. By 1974, the percentage of positions in contact specialties had increased to 32 percent and surgical positions had declined to 36 percent. When 1974 first-year residencies alone were examined, the percentage of contact specialties was 43 percent and surgical specialties was 30 percent.

TABLE 2. PERCENT CHANGE IN THE NUMBER OF RESIDENCY AND TOTAL TRAINING POSITIONS BETWEEN 1970 AND 1974 BY SPECIALTY

	Residency positions			Total positions		
Specialty	1970	1974	Percent change	1970	1974	Percent change
Total	23,865	37,343	+56	35,340	54,130	+53
Contact specialties	6,037	12,065	+99	10,800	19,965	+85
Family practice	135	1,545	+1,044	267	1,795	+572
General practice	116	203	+75	208	323	+55
Internal medicine	4,179	7,583	+81	7,725	13,559	+76
Pediatrics	1,607	2,734	+70	2,600	4,288	+65
Medical specialties	1,141	2,039	+79	2,350	4,026	+71
Medical subspecialties	168	405	+141	990	1,801	+82
Pediatric subspecialties	67	124	+85	288	517	+80
Nuclear medicine	10	65	+550	20	71	+225
Other medical specialties	896	1,445	+61	1,052	1,637	+56
Surgical specialties	9,648	13,641	+41	11,598	16,611	+43
General surgery	3,932	5,503	+40	5,111	7,312	+43
Obstetrics and gynecology	1,701	2,454	+44	2,084	2,981	+43
Surgical subspecialties	4,015	5,684	+42	4,403	6,318	+43
Other specialties	7,039	9,598	+36	7,949	10,953	+38
Anesthesiology	1,033	1,521	+47	1,165	1,764	+51
Pathology	1,555	2,005	+29	1,884	2,377	+26
Physical med. & rehab.	159	301	+89	176	323	+84
Psychiatry	2,473	3,346	+35	2,750	3,815	+39
Radiology	1,819	2,425	+33	1,974	2,674	+38
Rotating internship				2,643	2,575	-3

Source: Institute of Medicine National Survey Questionnaire.

These data confirm that first year and total positions in contact specialties are increasing, both in absolute numbers and as a percentage of total positions. However, it should be noted that this trend is overstated by the extent to which trainees in programs in general pediatrics and general internal medicine enter residencies or fellowships in a subspecialty or medical specialty. When all training positions are considered, 13 percent of the internal medicine and 11 percent of the pediatric positions are in subspecialties.

The National Intern and Resident Matching Program (NIRMP) reported that the rate of increase in positions offered in primary care specialties has been considerably less than the increasing numbers of applicants for such positions. A recent unpublished report from that organization concluded, "The medical centers and program directors if they are to accommodate the goals of the students, must increse the number of positions in these fields."

Although the trend in training positions in the past few years has been toward contact specialties, the lack of complete data for the most recent years, evidence from NIRMP that sufficient primary care positions are not available for applicants, and a belief that further changes in the mix of training positions are needed to improve the proportion of contact physicians in the total physician population, have led the study group to conclude that a stimulus is needed to accelerate the increase in contact specialties.

STRATEGIES FOR CHANGING PHYSICIAN DISTRIBUTION IN THE UNITED STATES

The study group has considered how the goals for physician distribution outlined earlier might best be achieved, and specifically, the influence that might be exerted by changes in Medicare and Medicaid payment practices. Strategies for changing the specialty distribution are considered first, followed by a discussion about effecting changes in the geographic distribution of physicians. A summary of factors which have been identified in the literature as influencing each of these distributions is included for each section.*

Influences on Specialty Choice

Research findings from the perspectives of many disciplines have been published about the reasons why physicians choose to specialize in a particular area of medicine. An extensive list of factors has been identified as influencing physician choice of specialty, but to date no comprehensive theory has been designed to assess the relative importance of these factors at the same time. Most studies analyze the decision to specialize in contrast to the decision to become a general practitioner; they therefore have limited utility for the current policy question, which is why physicians choose contact specialties or referral specialties. Definitions and methods vary from study to study and limit the usefulness of existing studies. Nevertheless, several tentative conclusions can be drawn from a review of the literature.

---

*See Chapter 9, Part II.

- Non-economic factors must be taken into account in explaining specialty choice; economic factors alone, particularly expected lifetime earnings, do not provide an adequate explanation.

- There is no fixed time at which a decision to choose a particular specialty is made; at least 50 percent of physicians do not firmly commit themselves to a particular specialty until the senior year of medical school or later, and up to a third may delay a final decision until the end of the first year of residency training. Specialty choice is frequently changed, particularly if made early in training. With the end of the freestanding internship, however, these patterns may change.

- Physician specialty preference is conditioned by background and personality characteristics and is reinforced by medical school and graduate medical education experiences.

- In the past, the environment of major teaching hospitals, which are secondary and tertiary care institutions, may have encouraged medical students and interns to choose specialty and subspecialty medicine. A community hospital environment for an internship has been more likely to encourage the choice of a contact specialty than that of the primary teaching hospitals. However, this difference may be as much a choice of pre-selection by the student as it is a reflection of the influence exerted by the respective hospital environments. This expansion of residency programs in community hospitals cannot necessarily be expected to increase the number of positions only in the contact specialties. Also, with the end of the freestanding internship, the influence of these institutions on the final specialty choice may be less important than that of the medical school environment.

- In the medical school context, faculty influence, including that of interns and residents, is an important factor in determining medical student and graduate trainee selection of specialties. The paucity of primary care role models compared to the preponderant influence of faculty in the specialties may be partially responsible for specialization and for aggravating the imbalance toward subspecialty medicine among recent graduates.

- Limited opportunity for training in well organized ambulatory care medicine in most undergraduate and graduate medical education programs may have further encouraged the trend toward specialty and subspecialty medicine.

It is clear from the literature that it is possible to influence choice and encourage the growth of particular specialties throughout medical school and possibly until residency training. The choice of a specialty for most physicians appears not to be determined by one agent at one particular time, but by a series of factors during a considerable period. Although future income may be a factor, it is only one of many determinants which influence specialty choice. Hence, strategies to influence specialty choice should be directed not only at financing policies but also at the content of training programs, their location, and their distribution by specialty. The number of residency slots available by type controls the number of specialists of each type produced. Thus, the recommendations of the study group for changing the specialty distribution of physicians depend upon influencing the total number and specialty mix of residency positions in the country.

STRATEGIES FOR INCREASING THE PROPORTION OF CONTACT PHYSICIANS

An increase in the number and proportion of contact physicians is an important objective for achieving a more rational specialty distribution of physicians. The major way to achieve this objective is to influence or control the number of residency slots in each specialty; the financing of graduate medical education should also be supportive of the desired balance. The present benefit structures of public and private health insurance programs have more generous coverage of inpatient than outpatient services, although the trend has been toward the increasing coverage of outpatient services. These programs indirectly influence specialty distribution of physicians at the graduate medical education level and the practicing physician level. The discussion following describes the effects of these programs and suggests policy measures that might lead to an increase in the number of contact physicians. In the subsequent section, methods are described that would ensure that residency positions are consistent with the specialty goals enumerated above.

The Influence of Third Party Payments at the Graduate Level

Third party payments provide little direct support for the costs of undergraduate medical education. However, they pay indirectly for a considerable amount of undergraduate and graduate clinical instruction by their support of the costs of house officer salaries and supervisory time of attending physicians and other support personnel, and by paying fees to attending physicians who provide joint teaching and patient care with medical students and residents. Under existing reporting systems, it is not possible to separate these payments into individual training programs within a particular hospital; therefore, it is not possible to respond directly to that part of the congressional charge.

It is possible, however, to comment on certain Medicare practices that tend to favor some specialties over others in revenues generated by the attending physicians, costs recovered for outpatient services, and, ultimately, in resources available for graduate training programs. For example, physicians in the contact specialties, who deliver a larger proportion of their care in the outpatient setting, are more likely to collect none of or less than the full charge for the services provided. This is due to several factors. In the first place, for non-Medicare or Medicaid beneficiaries, a greater proportion of the inpatient population is likely to have adequate insurance coverage compared to those requiring outpatient care, and many come to teaching hospitals because they offer care without charge. Secondly, only 80 percent of the cost of physician services, including those provided in an outpatient department, are covered by Medicare, with the remaining portion to be paid by coinsurance. Many Medicare beneficiaries who cannot afford the coinsurance required for an office visit will seek their care in the outpatient department attempting to avoid these payments. Similarly, many Medicaid patients have limited access to community physicians because of the complicated administrative arrangements in the program, and the non-competitive level of Medicaid payments. Therefore, they also seek care at the outpatient department of nearby hospitals. Third, even when Medicaid will pay for the visit, the payment tends to be well below the cost or charge for providing care. Thus, there is a disincentive for the physician to provide services in an outpatient department, including joint teaching and patient care, since income generated from fees will decrease. When all or part of these fees revert to the hospital, there is also a disincentive from the institution's point of view to encourage or expand outpatient services.

The major disincentive for the hospital, however, derives from the fact that on the hospital side, Medicare will pay only 80 percent of the costs of operating an outpatient department.

These factors make it more difficult for hospitals to generate adequate income to cover the costs of ambulatory care services and training programs, either within the hospital or at an offsite location, thereby discouraging hospitals from establishing ambulatory care programs for training physicians in primary care.* The steering committee recommends that financing mechanisms be changed to provide more equitable support for ambulatory care services so that medical schools and teaching hospitals would find it easier financially to support primary care training programs. Furthermore, Medicare and Medicaid monies might be used as an incentive to support the expansion of training opportunites in the contact physician specialties. The costs of residencies in the contact physician specialties should be excluded from provisions of Section 223** which place a ceiling on the allowed increase on costs to be covered by Medicare.

Other Proposals to Encourage the Production of Contact Physicians

The lack of financing of certain ambulatory care training activities, particularly in medical centers, has led to an expansion of direct project support for these programs with private, state, and federal dollars. Several states -- Florida, Illinois, South Carolina, West Virginia, North Carolina, Kentucky, Tennessee, and Arizona -- have enacted or considered various types of legislative proposals to provide direct support for house officer salaries and certain administrative costs of family practice residency programs. 7/ In response to these state initiatives, a growing number of medical schools and teaching hospitals have introduced or expanded their primary care teaching of medical students and residents.

- In the absence of a competitive level of support for residencies with ambulatory care orientations, until third party payment mechanisms have been restructured, the steering committee recommends that direct support to medical schools and teaching hospitals be continued through special project grants. This support should also be extended to cover the other contact specialties of general internal medicine and general pediatrics where quality programs can be maintained.

- Grants could be given to health maintenance organizations, community hospitals, comprehensive health centers, group practices, and other off-site training locations to cover the costs of training medical students and residents.

---

*It can be argued that since uncollected charges can eventually be written off as a bad debt under Medicare, the hospital eventually collects 100 percent of the costs from Medicare. However, the time lag involved and the indirect nature of this transaction do not adequately balance the short-term loss during the time decisions are made in the institution.

**Section 223 authorizes the Secretary to establish limits on overall direct or indirect costs which will be recognized as reasonable for comparable services in comparable facilities in an area.

The VA graduate medical education system plays a major role in graduate training. The VA system employed five percent of all interns and six percent of all residents in the United States during 1973-74. The distribution of residencies by specialty is similar to the general pattern, except there are no pediatric, obstetric, or family practice residencies. The purpose of VA hospitals and their patient load makes the mix of services provided considerably different from that provided to the general population. However, recent trends have been toward opening up the VA system to a broader spectrum of care, particularly outpatient care.

- Because the VA system trains specialists who later enter the practice of medicine in internal medicine for the general population rather than the VA hospital population, the VA should be encouraged to increase its emphasis on primary care practice in internal medicine and to continue to develop rotations for house staff to community-based hospitals and ambulatory care settings.

Monitoring System for Physician Manpower Distribution

The study group's analysis of the methods of determining a desirable physician distribution indicates a need for refining the ways to estimate physician manpower needs, obtaining accurate information on the current functional distribution of physicians by specialty and geography, and periodically reassessing national physician manpower strategy.

It is the opinion of the steering committee that a national system for monitoring physician manpower should be established. To be effective, the monitoring function must be linked to a mechanism or a body which can effect the desired changes in physician specialty distribution, over time, by having the authority to regulate the number and distribution of residency training positions. The propriety of a wide range of public and private organizational structures to undertake these functions has been considered. The steering committee recommends that a combined public and private sector effort be undertaken to monitor and control the number of residency positions by specialty.

- A permanent quasi-public independent physician manpower commission of 13 members should be established by law to monitor the specialty distribution of physicians and to determine the appropriate number of residency slots for each specialty. The enforcement of the commission's determinations would be the responsibility of the LCGME, the CCME,* and the AOA's Committee on Postdoctoral Training through extension of their respective accreditation mechanisms, to control the number of residency positions in each training program.

---

*Liaison Committee on Graduate Medical Education and the Coordinating Council on Medical Education.

- Commission members would be appointed by the Secretary of Health, Education, and Welfare within six months after the legislation is enacted. Commission members should be drawn from the fields of medical education, clinical medicine, private practice, biomedical research, the general public, and third party payors. The Secretary should appoint six members from slates of candidates submitted by the five parent organizations of the Coordinating Council on Medical Education and by the osteopathic community. The remaining members should be representatives from other sectors.

The major functions of this commission would be to monitor the physician specialty distribution in the United States and determine changes in the number of graduate medical education positions in those specialties which the commission feels are undersupplied or oversupplied. Its efforts should be coordinated with those of the new local and state health planning agencies created by the Health Planning and Resources Act of 1974. Necessary staff who are independent of the civil service system, and financial resources should be made available to the commission through government appropriation to enable it to carry out its functions, including:

- Assembling all available data on physician specialty distribution and collecting new data in those areas where more information is needed. The commission should be authorized by law to have access to government sources of pertinent data. The widest possible use should be made of existing data resources, particularly those of the National Center for Health Statistics. It would be assumed that any group which is represented must make its data available, if such data pertain to the commission's charge.

- Improving the methods of determining the appropriate specialty distribution for this country.

- Analyzing the current physician distribution and identifying those specialties undersupplied and oversupplied.

- Projecting and identifying future distribution of specialists based on the current distribution of house officers.

- Developing an annual specialty training plan for changes in the number of postgraduate training positions in those specialties determined to be undersupplied or oversupplied.

- Developing a longer range (five to eight years) plan for the appropriate distribution of physicians among specialties, including long-range projections for the appropriate mix of postgraduate training positions. It should be noted that effecting change in specialty distribution is a long process since medical education takes from seven to ten years from college graduation. Major changes in the balance of specialties, therefore, would happen slowly and long-range projections should be updated periodically.

If, after appropriate consultation with the private sector, the Secretary of HEW finds that the commission's determinations have not been implemented within three years following the establishment of the commission, the Secretary should seek legislation to reconstitute the commission as a federal advisory committee to himself and to permit the withholding of Medicare and Medicaid funds from residency programs in specialties considered in excess supply by the commission. The Secretary should inform the commission in advance of any contemplated use of Medicare and Medicaid funds to control the distribution of residency training slots, and should solicit comments from the commission on any other proposed actions by HEW to effect changes in specialty distribution.

Interim Strategy - A Moratorium

Since several years may elapse before the physician manpower commission is able to develop its first set of recommendations, interim measures should be undertaken to prevent continued imbalance in the distribution of physician manpower. There is compelling evidence at present to justify continued expansion of contact physician training opportunities and a reduction in postgraduate positions in the surgical specialties. The steering committee recommends that the following interim strategy for postgraduate physician training be implemented on July 1, 1977, and remain in force until the commission and the voluntary accreditation agencies have time to develop and implement a comprehensive physician manpower plan. The study group realizes that the LCGME and CCME recognize the seriousness of the present situation and strongly urges the LCGME to extend its accreditation authority to enforce the moratorium described below. The primary care emphasis of the osteopathic graduate training positions makes the implications of the moratorium much less significant for this group.

- With the exception of the category of contact physicians defined as family practice, general internal medicine, and general pediatrics, the number of all other postgraduate specialty training slots available as of July 1977 should be held at the level of residency positions filled as of July 1, 1975.

- The number of training slots for contact physicians should be expanded, with care given to ensure that the highest quality educational environment is maintained.

- There may be unusual circumstances which warrant an expansion of residency training slots in other than the contact specialties. Examples of these situations would include medical schools in the process of development or pending commitments to individual trainees.

Effecting Change at the Practicing Physician Level

Since Medicare and Medicaid payments averaged only about 17 percent of all personal health care expenditures in Fiscal Year 1973, structural changes in these programs alone can play only a small part in any role that the third party payors may undertake to influence specialty choice through financial incentives. Nevertheless, more generous coverage of ambulatory services by public and private health insurance programs might serve as an incentive for physicians to elect the contact specialties. To encourage this trend, the steering committee recommends that all third party payors incorporate the following principles:

- Benefit structures, including deductibles and coinsurance, should not encourage the use of inpatient care at the expense of ambulatory care. There should be no reduction in current inpatient benefits under Medicare and private plans to achieve this objective.

- Fees should be restructured to encourage the delivery of primary care services. Fees earned by contact physicians for the delivery of primary care should be at least equal to the fees earned by specialists for these same services.

- In order not to discourage primary care physicians from accepting Medicare and Medicaid beneficiaries, the allowed charges for these programs should be comparable to those of other third party payors. Recognizing the financial pressures faced by state governments, we must nevertheless point out that if fees are very low, as they are in some Medicaid programs, access to health care services may be denied to program beneficiaries.

In addition, the structures of physician payment mechanisms must be examined to determine whether there are inequities by specialty and type of service in the way physicians are paid by third party payors, including Medicare and Medicaid. There is some evidence that the relative value scales currently in use may affect physician income and productivity by specialty, and therefore, may implicitly encourage or deter physicians from entering certain specialties or providing certain services. For example, the physicians's fee for a procedure such as an endoscopy, no matter how simple, is several times more expensive than that for a medical visit encompassing a complete history and physical, 8/ even though they might require the same amount of physician time. Preliminary analysis of Medicare prevailing charges for individual procedures indicate that, in general, specialist charges tend to be higher than those of general practitioners, although the differences are not great.* In addition, the rate of increase in Medicare-allowed charges for most procedure oriented specialties, from 1968 to 1972, was above the average, while that of general practice and internal medicine had below average rates of change. These factors lead the steering committee to recommend that:

- A major study should be undertaken to re-examine the basis of physician fees and the fee allowances in public and private health insurance programs.

---

*For details of the analysis of fees, see Chapter 10, Part II.

This study should consider methods of realignment of the current structure of fees under national health insurance programs if it is found that fees for surgical or medical procedures tend to be much higher than those for general medical services after taking into account the skill and training needed to perform the service and complexity of the medical care being provided. The study should also evaluate geographic differences in fees for the same services. At the same time, the role and implications of the structure of malpractice premiums must be considered to determine whether they serve as entry barriers to practice in certain specialties and how they affect the present structure of fees among specialties.

STRATEGIES TO CHANGE THE GEOGRAPHIC DISTRIBUTION OF CONTACT PHYSICIANS

To assess the actual or potential role of third party reimbursement policies and payments and particularly that of Medicare and Medicaid, the importance of economic variables on a physician's choice of practice location should be understood. The limited role of Medicare and Medicaid in this process -- they constituted only 17 percent of personal health care expenditures for physician services in 1973, and in 1974 provided more than $25,000 a year to less than 15 percent of United States physicians in solo practice -- requires a careful assessment of how these programs affect a physician's choice of location or specialty. For only a small number of physicians do Medicare and Medicaid fees represent a majority of the total fees billed and collected for patient care services rendered, and fee levels are only one factor contributing to physician net income. Other factors include the customary fees charged for medical services rendered, the productivity of the physician, the number of hours the physician works, and the costs of establishing and maintaining a medical practice. Unfortunately, accurate data are not available on fees or income to clarify the relationship of Medicare and Medicaid payments and physician net income.

Economic Influence on Physician Location

Literature on determinants of physician choice of geographic location reaches no definitive conclusions about the relative importance of income in a physician's choice of practice location.* The general desire to maximize income, by itself, cannot explain the current distribution of physicians. There is no published empirical evidence on the relationship between net income, fee levels, and physician location choice, and no useful studies have been found which relate Medicare and Medicaid fees to other physician fees, or the effect of Medicare and Medicaid fee levels on physician location or specialty choice. Very little is known about factors which physicians consider when they set their fees or the third party sources of physician income.

---

*See Chapter 9, Part II for a detailed discussion.

To explore the relationship between current Medicare and Medicaid reimbursement policies and expenditures and the geographic distribution of physicians, physician distribution at the county level and prevailing* Medicare and Medicaid charges for a selected number of procedures and counties were analyzed. Adjustments were made for cost-of-living differences. There were wide variations in the prevailing charges used for specific individual procedures for both general practitioners and specialists. Composite indices** of charges for several procedures by county, both for medical and surgical procedures, showed no discernible pattern between or even within counties. The lack of interdependence between the level of prevailing charges for individual procedures within a county was evident in the differences between the surgical and medical indices in most counties. Even rigorous statistical analysis did not explain the variations in prevailing charge levels. In general, it was found that prevailing charges, and therefore, the general pattern of physicians' fees, tend to be higher in areas with high physician-to-population ratios. Other factors with which high Medicare fees are associated are concentration of hospital beds and medical schools, high-income areas, large metropolitan areas, and West Coast counties.

This suggests that there is no incentive in the present structure of fees that would encourage physicians to locate in underserved areas, and that policy mechanisms directed toward that goal need to be developed. Simple changes in the structure of fees will not be adequate to bring about a redistribution, however; other incentives besides income must be created to attract physicians to rural areas.

As shown by the limited evidence on the proportion of physician income derived from Medicare and Medicaid, these programs probably play a minor role in most physicians' total revenues, and marginal changes in these programs may have little impact on the average physician. For those physicians who do receive large amounts of Medicare and Medicaid payments, however, the level of maximum allowable charges in these programs may, in fact, influence their behavior. This potential may be very limited with recipients of Medicare payments, since the option to reject assignment permits the physician to charge higher fees for the services provided; the number of physicians exercising this option has increased markedly since 1969.

With Medicaid, where this option does not exist, fees are often so low they may discourage physicians from treating Medicaid beneficiaries altogether.*** If Medicaid fees in underserved areas were more comparable with the usual and customary fees of physicians in regions which do not have physician scarcities, they might serve as a positive inducement for physicians to locate in underserved areas. For example, in Kentucky, the availability of reimbursement by the Medicaid program has influenced physicians located in some of the most rural and poorest parts of the state to remain in practice in those areas. Without Medicaid support, it is highly unlikely that these physicians could earn enough income to continue to practice in these locations. Yet the nature of the Medicaid program, which reimburses at a lower level in these areas than elsewhere in the state, may discourage other physicians seeking a practice location in Kentucky.

---

*For a definition of prevailing charges, see Chapter 10, Part II.

**Chapter 10, Part II includes methods for the computation of county indices.

***For details on Medicaid fees, see Chapter 10, Part II.

The steering committee recommends that Medicaid practices which pay physicians at lower levels, particularly in underserved areas, be discontinued. This may be difficult to achieve, given the financial pressures faced by many state governments. Furthermore, anecdotal evidence on the disproportionate billing and administrative expense often associated with collecting Medicaid fees suggests that a detailed examination of Medicaid administrative practices should be undertaken to document the extent to which these practice affect the availability of physician services in underserved areas. In addition to the fees generated for patient care services, special per session payments could be made to primary care physicians through project grants as an incentive to remain in underserved areas until physicians' incomes equal those earned by primary care physicians in other areas.

Other Influences on Physician Location Choice

Although economic variables do not seem to be important in explaining the current distribution of physicians, certain non-economic variables appear to be very influential. Many types of community characteristics, including demographic, social, cultural, and environmental factors, are important in a physician's choice of location, but their amenability to influence by public policy is limited. One of the few community characteristics amenable to policy intervention, although at substantial cost, is the community's ability to provide professional contacts and health care resources. In general, there is some evidence that the existence of a medical school may influence the decision of specialists to locate in a given area. Similar results were found for number of hospitals and hospital beds.

There is a direct association between previous geographic contact with a particular area and a physician's choice of practice location. The type of community in which the physician was born or lived before attending medical school, particularly if a rural area, affects the choice of practice location. However, a recent study indicated that only 17 percent of applicants and accepted applicants to medical school in 1973 came from rural backgrounds. 9/ Additional prior location factors which singly and in combination affect location choice are the location of the medical school, the location of internship training, and the location of residency training. In particular, the place of residency training appears to be the single most important influence, with several studies concluding that between 44 and 60 percent of physicians practice in the same state as the site of their residency training. However, they do not necessarily locate in areas within the state that lack physicians.

Several studies suggest that a location decision is not made until after graduation from medical school by as much as 75 to 85 percent of all physicians. There are opportunities to intervene before and during medical school training to influence the choice of future practice location. A combination of policies could perhaps change physician distribution. Attempts to increase the number of medical school applicants from rural backgrounds, perhaps by the extension of financial aid, are not sufficient, since rural-reared physicians who choose non-primary care specialties practice in urban areas. The development of training sites in rural and inner-city areas at both the undergraduate and graduate level might also be considered. The use of preceptorship training programs to expose medical students and residents to rural practice opportunities is another mechanism which may influence physicians to locate in rural areas. Although there is weak empirical evidence about the effectiveness of the programs, the findings indicate that exposure to rural practice encourages urban-reared medical students and postgraduates, particularly those planning to enter non-primary care, to choose to practice in rural areas; the effect was slight on rural-reared physicians. Although a greater proportion of rural-reared physicians participate in preceptorship programs and choose rural practice, it appears the decision is based on predisposing factors and not program participation. 10/

Similarly, at the graduate medical education level, the commission proposed to monitor the distribution of residency positions by specialty should also consider location in its allocation of training slots. Decisions on location should take into account the need for physicians in small towns, rural areas, and community hospitals, with emphasis on locating these programs in areas where there is evidence of a physician shortage. Care should also be exercised to take into account the needs of the inner-city hospitals which serve as the primary source of care for low-income groups.

In the development of these preceptorship opportunities, the accreditation and certifying groups should ensure that there is a critical mass of patients and supervisory physicians necessary for a good educational program. All preceptorship programs should be closely associated with university-based training activities; to ensure that there is adequate university surveillance of these programs, accreditation of the educational programs within the university setting should be contingent on the preceptorship arrangements providing an educational environment suitable for the type of training being carried out.

Empirical evidence exists which shows a significant relationship between the desire to enter rural practice and an interest in group practice arrangements. This suggests that group practices around a small hospital with a concentration of a critical mass of physicians in a central location, combined with "circuit riding" to satellite clinics, could be experimented with and, if successful, be replicated. Appropriations for experiments under Medicare and Medicaid could be used to explore the feasibility of adjusting the level of prevailing charges in underserved areas, and the level of customary fees of physicians who would practice in these areas to take account of certain additional costs which might be involved in travel and administration of these arrangements. Experimentation of this type through project grants could also be used to explore the development of organized rotations by teaching physicians in underserved areas on a regularly scheduled basis, to permit them to attend professional meetings and work in a teaching setting. To support these developments, seed money should be available to underwrite the first few years of organized group practice, particularly the salaries of support staff, all of which might encourage physician groups to form in underserved areas. Also considered should be use of allied health professionals who would provide first contact care and who would refer patients to physicians in larger towns, and implementation of new technological developments such as on-line diagnostic techniques and the use of helicopter transfer services.

The experience of the Area Health Education Centers (AHECs) established under the authority of the Comprehensive Health Training Act of 1971 to train and retain health personnel for underserved areas is another promising example of a way to encourage physicians to locate in rural areas. This program differs from the area health education centers established under the auspices of the Regional Medical Program (RMP) of HEW and by the Department of Medicine and Surgery of the Veterans Administration in its emphasis on postgraduate medical education and alleviation of manpower maldistribution problems. AHECs function as links between medical schools, and university health science centers with one or more hospitals, usually community hospitals which are located some distance from the educational institution and which provide medical services and educational programs in areas underserved by health personnel. The programs include clinical instruction for undergraduate and other health personnel, continuing education for physicians and other health professionals, and residency training with emphasis on training in family medicine and other contact care specialties. There were approximately 13,000 medical, dental, nursing, and allied health personnel, excluding those in continuing education, enrolled in training for the first few years; of these 1,100 were residents. Since the AHEC program has been functioning only four years, it is still too early to assess adequately its accomplishments.

Another federal program organized to attract practicing physicians to the underserved areas is the National Health Service Corps (NHSC). The NHSC recruits and places physicians, dentists, nurses, and other health professionals in areas with critical health manpower shortages, and aids these communities in developing a self-sufficient health care delivery system. By February 1975, 981 counties and areas had been designated as critical health manpower shortage areas, and the corps had approved 428 of these sites for physician assignment.

Doctors entering the corps after their internship can earn more than $30,000 in the first year, depending on experience. Malpractice insurance is included for all assignees. The retention rate increased from three percent in 1973 to 30 percent in the spring of 1975. During this period, the primary incentive for joining the corps shifted from exemption from military service to the availability of a guaranteed income competitive with other federally employed physicians, but lower than for physicians entering private practice. Between the end of the military draft, and the inception of a competitive income, the retention rate was lowest.

Although income maximization may not be an important objective in physician location choice, potential for maintaining a minimal acceptable income is a factor. Thus, at its present salary level, the corps is attractive to public-service oriented physicians and to physicians who complete their medical education with large debts or with insufficient funds to establish a private practice.

CONCLUSION

The steering committee recognizes that there are major difficulties encountered in developing estimates of the appropriate supply of physician manpower in the United States. The appropriate distribution of physicians by specialty or geography is even more difficult to determine since there are major data gaps on the extent to which contact physicians provide specialty care and other specialists deliver primary care. Nevertheless, based in part on the deliberations of a series of manpower seminars designed to obtain the best judgments of experts in the health care field and findings of other studies, the steering committee has reached the following conclusions about goals for redistributing physicians: there should be an increase in the total number of contact physicians as well as the proportion of all physicians in these specialties; there should be no further increase in the number of general surgeons or surgical specialists per 100,000 population; there should be a reduction in the number of physicians entering training in the surgical specialties; and patient access to contact physicians in underserved areas should be improved.

The role that Medicare and Medicaid might play in achieving these goals was examined in considerable detail, as were other policy alternatives available to the federal government and the private sector. The steering committee concluded that third party payments should be restructured to provide more equitable support for ambulatory care services and inpatient services. This would include the level of deductibles and coinsurance, and the proportion of hospital costs covered by Medicare in the inpatient and outpatient departments. These changes would make it financially easier for medical schools and teaching hospitals to support primary care services. Further studies should be undertaken to re-examine the basis of physician fees and the fee allowance in public and private health insurance programs.

At the graduate medical education level, the steering committee recommends establishment of a permanent, quasi-public independent physician manpower commission to monitor the specialty distribution of physicians in the United States and determine changes in the number of graduate medical education positions in those specialties which the commission feels are in undersupply or oversupply. Commission members would be appointed by the Secretary of HEW and would include six members from the physician community and seven from the public and third party payors. Implementation of its recommendations would be by the LCGME and the AOA's Committee on Postdoctoral Training through extension of the accreditation process to limit numbers. If the commission has not acted within three years after its inception, the Secretary should seek legislation to reconstitute the commission as an advisory committee to HEW and to permit the use of Medicare and Medicaid funds as an enforcement mechanism. Up to the time the commission is established and develops its recommendations, a voluntary freeze, effective July 1, 1977, should be imposed on all residency positions filled as of July 1, 1975, except in the contact specialties, to be enforced by the LCGME and the Committee on Postdoctoral Training extending their accreditation power to control the number of positions in each training program.

The study group concluded that the desired changes in the geographic distribution of physicians should be sought by developing incentives to increase the number of contact physicians in critically underserved areas; assuring financial access to ambulatory care in all areas; and adopting alternatives which extend the geographic area which a physician can serve. The utility of Medicare and Medicaid physician payment policies to achieve these changes is limited; however, these programs constituted only 17 percent of total personal national health care expenditures in 1973, and the present structure of Medicare and Medicaid fees in general possesses no incentive to encourage physicians to locate in underserved areas. In fact, fees tend to be higher in areas with high physician-to-population ratios than in physician shortage areas. Also, in some areas both programs, and particularly Medicaid, pay physicians at a lower level than private insurers will pay for the same services. The steering committee recommends that these practices be discontinued, particularly in underserved areas, and that a detailed examination of Medicaid administrative practices be undertaken to ascertain if these practices affect the availability of physician services in these areas.

The development of training sites in rural and inner-city areas at both the undergraduate and graduate levels, expanded use of preceptorship training programs, use of the proposed physician manpower commission to allocate the specialty residency positions by location, the encouragement of group practice arrangements by project grants, the use of allied health professionals, and the implementation of new technological developments may all be mechanisms to improve physician distribution in this country. AHECs and the National Health Service Corps are mechanisms already in operation for this purpose.

Since many factors affect a physician's choice of specialty and geographic location in the United States and financial incentives play only a minor role in these determinations, a flexible, comprehensive, and balanced strategy is essential if the physician manpower goals adopted by the steering committee are to be achieved.

REFERENCES

Chapter 2

1
K. Davis, "Financing Medical Care: Implications for Access to Primary Care," in Primary Care, Where Medicine Fails, ed. S. Andreopoulos (New York: John Wiley and Sons, 1974).

2
D. W. Anderson, Health Care: Can There be Equity? The United States, Sweden and England (New York: John Wiley and Sons, 1972); T. McKeown and C. R. Lowe, An Introduction to Social Medicine, 2nd ed. (Philadelphia: J. B. Lippincott Co., 1974); W. McDermott, K. W. Deuschle and C. R. Barrett, "Health Care Experiment at Many Farms," Science 175 (January 7, 1972): 23.

3
McKeown and Lowe; McDermott et al.

4
The American College of Surgeons and the American Surgical Association, Surgery in the United States: A Summary Report of the Study on Surgical Services for the United States (1975); U.S. Department of Health, Education, and Welfare, National Institutes of Health, National Heart and Lung Institute, Evaluation of Cardiology Training and Manpower Requirements, ed. F. H. Adams and R. C. Mendenhall, No. (NIH) 74-623 (Springfield, Va: National Technical Information Services, 1974); R. J. Reitemeier, J. A. Spittell and R. E. Weeks, "Participation by Internists in Primary Care: Results of a Survey of Mayo Clinic Alumni," Archives of Internal Medicine 135 (1975): 255.

5
Comprehensive Health Planning Association in the Metropolitan Portland Area, Physician Manpower in Oregon Data Book, 1975 (Portland, 1975); Medical Association of Georgia, "Survey of Practicing Physicians," personal communication.

6
The American College of Surgeons, Surgery in the United States; "Physician Manpower and Distribution - The Primary Care Physician; a Report of the Coordinating Council on Medical Education," Journal of the American Medical Association 233 (1975): 880.

[7] Armand Checker, "State Funding for Targeted Programs in Graduate Medical Education," Journal of Medical Education 49 (June 1974): 621.

[8] Robert G. Petersdorf, "A Societal Commitment to Equity: Role of the Medical Care Provider," paper presented at the Institute of Medicine Annual Meeting, November 1975.

[9] Sam Cullison et al., "The Rural-Urban Distribution of Medical School Applicants," Journal of Medical Education 51 (January 1975): 47-49.

[10] Bruce Steinwald and Carolynn Steinwald, "The Effect of Preceptorship and Rural Training Programs on Physicians' Practice Location Decisions," Medical Care 13 (March 1975): 219-229.

Chapter 3

FOREIGN MEDICAL GRADUATES

Part D of the congressional charge asks the study group to examine "the extent to which such funds (Medicare and Medicaid) support or encourage training programs which tend to disproportionately attract foreign medical graduates."

"Foreign medical graduate" is defined in this study as a graduate of a medical school located outside the United States, Puerto Rico, or Canada. A subgroup consists of the United States foreign medical graduates, American citizens who graduate from a medical school located outside the United States, Puerto Rico or Canada. Unless otherwise specified, United States foreign medical graduates are included as foreign medical graduates in this study.

Foreign medical graduates have become an increasingly significant source of medical manpower in the United States since the end of World War II. Many foreign medical graduates are from developing nations, and their presence as interns and residents, and particularly as practicing physicians in the United States, has led to concern about the effect this might have on the medical care systems of their original countries as well as that of the United States.

The Institute of Medicine field study data showed that differences in Medicare and Medicaid support for institutions of varying concentrations of foreign medical graduates were not statistically significant.

Data also indicated that foreign medical graduates tend to occupy less competitive, or less desirable, positions. The number of United States medical graduates is increasing, and if there is no increase in the number of internships and residencies, there will be a substantial reduction in the number of slots available for foreign medical graduates within the next decade. The steering committee, therefore, recommends the elimination of existing incentives for physician immigration.

OTHER STUDY GROUPS AND LEGISLATIVE PROPOSALS

Several public and private organizations have studied foreign medical graduates in the United States, beginning in 1967 with the Panel on Foreign

Medical Graduates of the Presidentially appointed National Advisory Commission on Health Manpower (NAC), which concluded that graduate medical education received by foreign medical graduates in the United States should be "designed to fit them for medical practice in their own countries or, in the case of physicians who intend to stay in the United States permanently, designed to qualify them to fully meet the standards of medical education and health care prevailing in the United States." 1/ Furthermore, NAC recommended that the number of physicians receiving undergraduate medical education in the United States be increased so that the supply of physicians and other health personnel will be adequate to meet the nation's needs.

More recently, the Coordinating Council on Medical Education (CCME) has examined the implications of the presence of foreign medical graduates in the United States medical care system, and has developed a policy statement in a report submitted to its parent organizations. 2/ With the exception of three of the forty-eight recommendations, the report has been accepted by all five parent organizations* and expresses the current position of the medical profession. Among the concerns identified by the CCME and also expressed by other groups are:

- inability to evaluate the variation in curriculum content and standards of education in medical schools throughout the world;
- the appropriateness of the examination offered by the Educational Commission for Foreign Medical Graduates as a test of whether a foreign medical graduate can benefit from participation in graduate medical education programs;
- whether a foreign medical graduate's qualifications to provide care in a graduate medical education position and subsequent practice have been adequately tested;
- the deflection of the exchange visitor program from its original purpose of training physicians for service in their own countries to serving as an entry route for practice in the United States;
- the extent to which foreign medical graduates who have failed to meet full licensure requirements are employed in the health care system;
- the extent to which foreign medical graduates are admitted to programs which emphasize service activities with minimal attention to an education program designed to meet their special educational needs; and
- communication difficulties which may exist between physicians and patients with different language and cultural backgrounds.

---

*American Medical Association, Association of American Medical Colleges, American Hospital Association, the American Board of Medical Specialties, and the Council of Medical Specialty Societies.

Congress has also expressed interest in these issues. Several legislative proposals introduced in the 94th Congress included provisions which would affect foreign medical graduates in United States graduate medical education programs.

In March 1975, the House Committee on Interstate and Foreign Commerce reported out H.R. 5546, which included a provision to limit the number of first-year graduate training positions in 1976 to 155 percent of the number of graduates of United States medical schools. In this bill, authorization for residency slots would be decreased until 1979 when the number would equal 125 percent of United States medical graduates. Since Institute of Medicine data (discussed below) show that training program directors choose United States medical graduates before foreign medical graduates, greater competition for fewer slots would mean fewer opportunities for foreign medical graduates. As a result, opportunities for foreign medical graduates to obtain graduate medical education in the United States would be markedly reduced. On July 11, 1975, however, the House of Representatives passed H.R. 5546 without the section which would have limited residency slots, and sent the bill to the Senate where it was referred to the Committee on Labor and Public Welfare.

The Senate Subcommittee on Health has been considering S. 989 which provides for establishment of regional councils for graduate physician training, one major function of which would be to recommend to the Secretary of the Department of Health, Education, and Welfare the number of graduate training positions to be certified each year. The limit on graduate training positions would be reduced gradually so that by July of 1978, the number of first year positions would equal 125 percent of the number of United States medical graduates. Within the number of positions certified in accord with council recommendations, the Secretary of HEW would assign residency positions among specialties and subspecialties. The bill mandates that such allocations are to be based on a study of geographic and specialty distribution which will consider state and local needs and repercussions from changes in national health manpower distribution. These restrictions would have the effect of curtailing the number of foreign medical graduates in graduate medical education in the United States. The Senate Subcommittee on Health has held hearings on this and other manpower legislation, but as of February 20, 1976, no further action on the bills had been taken. The administration proposal, S. 2748, introduced on December 5, 1975, contains no similar proposal to limit residency positions, nor any specific references to foreign medical graduates.

It is within the context of these concerns and possible legislative actions that the study group examined the issue of foreign medical graduates in graduate medical education. It was decided that the specific language of the congressional charge precluded examination of issues related to quality of care rendered by such physicians or the propriety of acceptance by the United States of physicians from developing countries. Therefore, the focus of this study is the foreign medical graduate in graduate medical education: where he receives training, the content and structure of the training programs, and the financial support for such programs from Medicare and Medicaid.

FOREIGN MEDICAL GRADUATES IN GRADUATE MEDICAL EDUCATION

Foreign-trained physicians are attracted to the United States by many factors, including the quality of life in this country as well as the excellent medical care facilities and greater professional opportunities available in both graduate medical education and in practice than those which may be available in their own countries. Since the passage of the Smith-Mundt Act in 1948, which authorized the issuance of exchange visas to citizens from other nations who wished to pursue educational opportunities in the United States, physicians have arrived in growing numbers to enter the medical education system, particularly graduate medical education programs.

The American Medical Association reported that in 1950, 722 internships (ten percent) and 1,350 residencies (nine percent) were filled by foreign medical graduates. 3/ Immediately after World War II, many hospitals expanded training programs to accommodate physicians who wished to complete or further their medical training. During this period, there was a record expansion of graduate training positions without a concomitant expansion in undergraduate medical positions. With the Korean conflict's demand for military service from physicians, many approved training positions were vacant, and hospitals increased reliance on foreign medical graduates to fill their needs.

The number of graduate medical education programs and positions continued to grow because of increasing specialization, availability of research funds, and changing career goals. Administrative decisions by federal agencies, such as the one to include hospitals as sites for exchange visitor education programs, were not coordinated with congressional action reducing immigration barriers to physicians; an unexpected side effect of the changes in the immigration laws and the exchange visitor program was to make it relatively easy for foreign-trained physicians to enter the United States. By 1975, one-third of the house officers in teaching hospitals and approximately 20 percent of the total licensed physician population in the United States were foreign medical graduates.

The number of foreign medical graduates entering the country both as immigrants and exchange visitors has increased every year since the 1965 changes in the immigration laws. Each year, however, some foreign medical graduates who receive immigrant visas are already in this country and have adjusted their status from exchange visitor to immigrant. These adjustments must be taken into account to ascertain the actual number of foreign medical graduates arriving in the United States. Recently published data indicate that in 1973 there were 5,144 non-immigrant foreign medical graduates and

7,119 immigrants "entering" the United States. Of this latter number 4,140 were adjustments in status and 2,979 were new immigrants, making a total of 8,123 new arrivals to the United States. 4/ More than half the physicians came from developing countries in Asia and Africa. Preliminary 1974 data indicate that of the 4,537 immigrant visas granted to foreign medical graduates, at least one-fifth were adjustments in status. 5/

At the present time, there are several countries with a protracted wait for an immigration number, even within the third and sixth (occupational) preference categories.* Many physicians from these countries initially enter the United States as exchange visitors, and subsequently file for adjustment to permanent immigrant status. This should explain data from the past several years which show that the number of immigrants resulting from an adjustment in status exceeded the number of new arrivals to the United States.

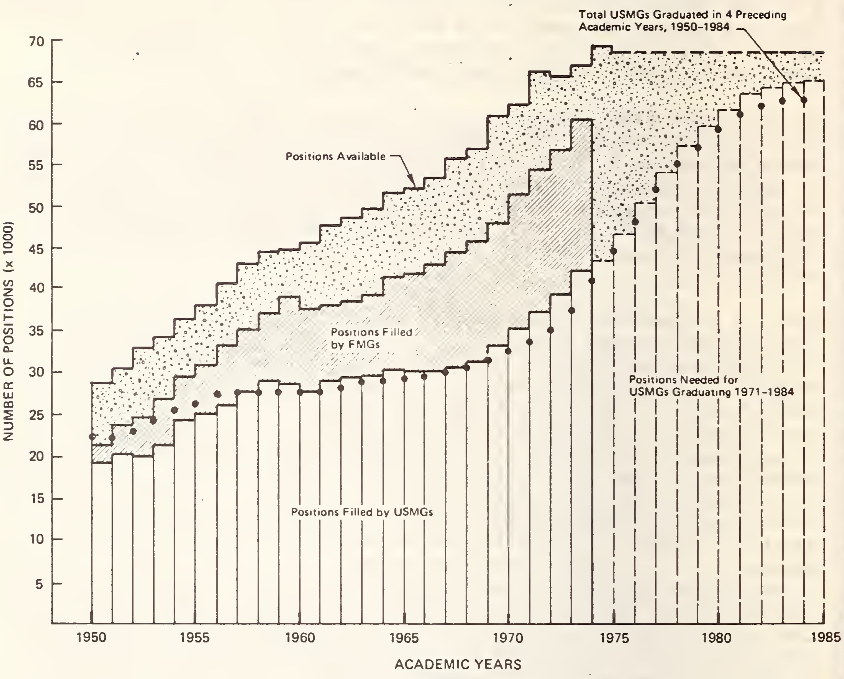
Although an immediate reduction in the availability of foreign medical graduates would cause a dislocation in physician supply and patient services offered by certain teaching hospitals, it now appears that the future supply of United States medical graduates will reduce greatly the number of house officer positions available for foreign medical graduates. In response to federal policy in the 1960s to increase United States production of physicians, new medical schools were established and many existing schools increased their class size. As a result, the number of United States medical graduates has continued to grow each year. Figure 1 shows that if there is no substantial increase in the number of graduate medical education slots available, almost all positions can be filled by United States medical graduates by the middle of the next decade. 6/ Since 44 of the 55 medical licensing jurisdictions in the United States require completion of at least one year of approved postgraduate training by foreign medical graduates, 7/ the reduction in the number of internship and residency slots available for foreign medical graduates will reduce the number of foreign medical graduates who can enter the United States medical care system as fully licensed physicians. To the extent that fiscal pressures on teaching institutions reduce the number of training slots, the trend will be accelerated.

The increase in the number of United States medical graduates and the possible decrease in house officer training slots will greatly reduce the training

---

*Preferential immigration categories were established in Public Law 89-236. Third preference applied to "qualified immigrants who are members of the professions, or who because of their exceptional ability in the sciences or the arts will substantially benefit prospectively the national economy, cultural interests or welfare of the United States." Sixth preference applied to "qualified immigrants who are capable of performing specified skilled or unskilled labor, not of a temporary or seasonal nature, for which a shortage of employable and willing persons exists in the United States."

FIGURE 1
RELATION OF NUMBER OF USMGS TO APPROVED INTERNSHIPS AND RESIDENCIES



Source: John Gordon Freyman, M.D., "A Clinical View of the Foreign Medical Graduate Problem," (unpublished paper prepared for the Department of Health, Education and Welfare) opportunities available for foreign medical graduates. Implementation of the steering committee's recommendation for a moratorium on most new graduate medical education slots and a mechanism for reduction of existing slots (Chapter 2) will also reduce such opportunities. In view of the increasing number of United States medical graduates, the decreasing number of positions likely to be available for foreign medical graduates, and the possibility that future foreign medical graduates may not be able to secure the graduate medical education necessary for full licensure in this country, the steering committee recommends the elimination of existing incentives for physician immigration, including the removal of medicine as a shortage profession under the Department of Labor's Schedule A.* The recommendation to remove medicine as a Schedule A shortage occupation in no way implies that the steering committee takes a position on whether the United States has adequate physician manpower, but merely reflects the view that graduate medical education positions for foreign medical graduates are not likely to be available in sufficient numbers to justify continued preferential immigration for physicians.

The steering committee also supports establishment and maintenance of a comprehensive data system on foreign medical graduates in the United States to include accurate information on their numbers, training, integration into the United States medical care system, and the professional activities of those foreign medical graduates who do not acquire full certification or licensure.

DISTRIBUTION OF FOREIGN MEDICAL GRADUATES IN HOUSE OFFICER POSITIONS**

The congressional charge specifically requests that Medicare and Medicaid support for programs which "tend to disproportionately attract foreign medical graduates" be examined. Disproportionality is a complex concept which requires normative judgments. In the absence of legislative history defining disproportionality, the study group examined the characteristics of programs and institutions based on their relationship to the national average of foreign medical graduate concentration. Guidelines for specialties, for training programs, and for institutions were established based on analysis of a national survey of teaching hospitals conducted by the Institute of Medicine.***

A particular specialty was considered above the national average if the proportion of foreign medical graduates in training**** exceeded the proportion of foreign medical graduates in training in all specialties.

---

*Schedule A is issued by the Department of Labor and lists occupations in short supply in the United States.

**Only positions in allopathic institutions were included in this chapter, since there are no foreign doctors of osteopathy.

**For a more detailed discussion see Chapter 11, Part II.

**Only interns and residents were counted in determining house staff in programs and institutions. Fellows and other trainees were considered separately.

A particular training program* was considered above the national average if the percentage of foreign medical graduates exceeded the national average for that specialty. Training programs were classified as follows:

- those with almost no foreign medical graduates,**
- those with a foreign medical graduate concentration at or below the national average for a particular specialty,
- those with a foreign medical graduate concentration above the national average, and
- those with almost all foreign medical graduates.**

An institution was considered above the national average if more than 30 percent of its house staff were foreign medical graduates or if more than 38 percent of its training programs had foreign medical graduate percentages which exceeded the national specialty average. These criteria were based on data which showed that 30 percent of all house officers were foreign medical graduates and that 38 percent of all training programs had concentrations of foreign medical graduates which exceeded the national average for a particular specialty. Institutions were divided into four classifications as above:

- those with almost no foreign medical graduates,**
- those with foreign medical graduate concentrations at or below the national average,
- those with foreign medical concentrations above the national average, and
- those with almost all foreign medical graduates.**

The decision to examine the proportion of foreign medical graduates at the program level as well as the institutional level was made for several reasons. Some institutions have high concentrations of foreign medical graduates in only one or a few specialties. Other institutions with a high overall concentration of foreign medical graduates have programs in one or more specialties which are predominantly staffed by United States medical graduates. House staff in a particular specialty training program may have little or no contact with house staff in other training programs in the same institution; the exposure of a particular house officer to others, either United States medical graduates or foreign medical graduates, is a function of the program not the institution. Finally, factors relating to the structure of training programs and patient activities tend to vary among specialty programs within an institution.

---

*A program in several hospitals was counted as a separate training program in each hospital.

**Programs and institutions with less than 0.5 percent foreign medical graduates were considered to have no foreign medical graduates; programs and institutions with a foreign medical graduate concentration above 99.5 percent were considered to be all foreign medical graduates.

Specialties

National Survey Questionnaire data showed that foreign medical graduates in training in the following specialties exceeded the national average of 30 percent:*

physical medicine and rehabilitation	65 percent
pathology	57 percent
anesthesiology	54 percent
colon and rectal surgery	54 percent
nuclear medicine	49 percent
therapeutic radiology	44 percent
pediatrics	41 percent
psychiatry	39 percent
obstetrics and gynecology	38 percent
general surgery	37 percent
radiology	34 percent
preventive medicine	33 percent
neurology	31 percent

Specialties with percentages of foreign medical graduates in training well below the national average of 30 percent were:

dermatology	7 percent
ophthalmology	9 percent
family practice	12 percent
orthopedic surgery	14 percent
otolaryngology	17 percent

Training Programs

The average foreign medical graduate concentration was computed for each specialty and subspecialty from National Survey Questionnaire data. These figures were used to determine the number of programs which had foreign medical graduate concentrations above and below the average concentration for each specialty (Table 1).

---

*The National Survey Questionnaire reported 277 positions in general practice. The programmatic mean for such programs was 87 percent foreign medical graduates. Although there is no specialty board for general practice, it is considered separately in this chapter to avoid confusion with family practice, a recognized specialty which has a foreign medical graduate proportion of 12 percent. Rotating internships were 45 percent filled by foreign medical graduates.

More than half the programs in the specialties of physical medicine, pathology, and anesthesiology--all specialties previously identified as having a higher than average overall percentage of foreign medical graduates--had above average concentrations of foreign medical graduates.

Seventeen percent of all programs were almost all foreign medical graduates; 45 percent had almost no foreign medical graduates. All specialties had some programs which fell into both categories, with specialties with a high overall concentration having the greatest proportion of programs with almost all foreign medical graduates, and those with a low overall concentration of foreign medical graduates having the greatest proportion of programs with no foreign medical graduates. Thoracic surgery was the only specialty which had a percentage of programs in both the very high and very low foreign medical graduate categories which exceeded the overall average for these categories.

Thirty-four percent of all house staff were in programs with a foreign medical graduate concentration which exceeded the national average; 86 percent of the foreign medical graduates were in such programs, compared to 12 percent of United States medical graduates.

Thirty-five percent of the foreign medical graduates (representing 11 percen of the total house staff) served in programs which were almost all foreign medical graduates. Forty-eight percent of the United States medical graduates (one-third of the total house staff) served in programs with almost no foreign medical graduates.

The house officer activity survey conducted by the Institute of Medicine indicated that not only were there no substantial differences in the distribution of house officer time among various professional activities between United States medical graduates and foreign medical graduates, but there were no great differences among the distributions of house staff time in programs with differing concentrations of foreign medical graduates (Table 2). House staff in programs which were all foreign medical graduates spent slightly less time in patient care activities and more time in learning situations. Also, house staff in programs with higher concentrations of foreign medical graduates spent more patient care activity time in the presence of an attending physician (31.4 percent) and less in patient care activities without expectation of review (9.7 percent) than did house staff in institutions with very low foreign medical graduate concentrations (23.9 percent and 13.5 percent, respectively).

Institutions

An institution was considered to have a higher-than-average concentration of foreign medical graduates if more than 30 percent of the house staff were

TABLE 1. DISTRIBUTION OF TRAINING PROGRAMS BY FOREIGN MEDICAL GRADUATE CONCENTRATION AND BY SPECIALTY (1975) (percent)

Specialty	Average FMG percentage in training programs	Total programs a/	No FMGs b/	Below average FMGs	Above average FMGs	All FMGs b/
Total	33	4,795	44.9	16.7	21.1	17.2
Medical	31	1,449	44.4	17.9	21.1	16.6
Family practice	12	139	66.9	9.4	20.9	2.9
General practice	87	28	10.7	3.6		85.7
Internal medicine	27 c/	799	45.7	20.3	22.2	11.9
Pediatrics	38 c/	282	35.1	21.6	24.1	19.1
Other medicine	44 c/	201	41.8	10.9	15.9	31.3
Surgical	36	2,058	55.0	11.3	22.1	11.7
Neurosurgery	19	129	64.3	1.6	24.8	9.3
Obstetrics & gynecology	38	292	35.3	24.3	22.9	17.5
Ophthalmology	9	222	76.6	3.2	17.6	2.7
Orthopedic surgery	14	292	65.1	8.6	20.9	5.5
Otolaryngology	17	154	67.5	5.2	18.8	8.4
Thoracic surgery	30	114	58.8	2.6	19.3	19.3
Urology	22	246	61.8	4.9	22.0	11.4
Other surgery	23 c/	152	62.5	4.6	19.7	13.2
General surgery	37 c/	457	36.8	21.2	26.3	15.8
Psychiatry	37	296	30.4	29.7	24.7	15.2
Hospital-based	49	992	28.9	22.4	18.2	30.4
Physical med. & rehab.	65	75	17.3	18.7	18.7	45.3
Radiology	34 c/	363	42.4	19.3	19.3	19.0
Pathology	57	374	22.2	24.1	13.9	39.8
Anesthesiology	54	180	20.6	26.7	25.0	27.8

Source: Institute of Medicine National Survey Questionnaire.

a/There were 517 programs with an unknown percentage of foreign medical graduates and 127 oral surgery programs not included in the analysis of foreign medical graduate concentration.

b/Programs with less than 0.5 percent foreign medical graduates were considered to have none; programs with more than 99.5 percent foreign medical graduates were considered to be all foreign medical graduates.

c/This specialty category comprised several individually reported specialties and subspecialties. Each specialty was compared to its own overall average percentage. Listed is an aggregate percentage.

TABLE 2. DISTRIBUTION OF HOUSE OFFICER TIME IN TRAINING PROGRAMS BY FOREIGN MEDICAL GRADUATE CONCENTRATION (1975) (percent)

Type of activity	All programs	No FMGs a/	Below average FMGs	Above average FMGs	All FMGs a/
Total hours					
All house officers b/	262,688	78,074	70,962	81,904	41,628
U.S. medical graduates	207,195	75,980	63,155	28,589	7,277
Foreign medical graduates	54,959	1,894	7,750	53,315	34,351
Total patient care					
All house officers b/	64.0	63.1	61.6	68.1	65.3
U.S. medical graduates	63.0	63.2	61.6	63.6	57.0
Foreign medical graduates	67.8	56.8	60.8	70.3	66.9
Patient care and research					
All house officers b/	.3	.3	.2	.2	.2
U.S. medical graduates	.3	.3	.2	.1	.1
Foreign medical graduates	.2	.0	.2	.2	.2
Patient care and teaching					
All house officers b/	15.1	17.7	16.9	11.6	8.3
U.S. medical graduates	16.6	17.8	17.2	12.8	23.8
Foreign medical graduates	9.5	15.0	14.2	11.0	5.1
Learning					
All house officers b/	15.0	13.5	14.5	16.1	21.8
U.S. medical graduates	14.2	13.3	13.9	18.0	15.7
Foreign medical graduates	18.0	21.3	19.6	15.2	23.0
Teaching					
All house officers b/	2.0	1.9	2.3	1.6	2.1
U.S. medical graduates	2.1	1.9	2.4	2.1	1.4
Foreign medical graduates	1.8	1.0	1.7	1.4	2.2
Research					
All house officers b/	2.1	2.1	3.0	1.3	1.4
U.S. medical graduates	2.2	2.0	3.1	1.7	.8
Foreign medical graduates	1.8	4.6	2.4	1.2	1.6
Administration					
All house officers b/	1.4	1.4	1.5	1.0	1.0
U.S. medical graduates	1.5	1.4	1.6	1.6	1.1
Foreign medical graduates	.8	1.2	1.0	.7	.9

Source: Institute of Medicine House Officer Activity Analysis.

a/Programs with less than 0.5 percent foreign medical graduates were considered to have none; programs with more than 99.5 percent foreign medical graduates were considered to have all foreign medical graduates.

b/May include hours of house officers of unknown United States medical graduate/foreign medical graduate status.

foreign medical graduates or if more than 38 percent of the training programs in the institution had a foreign medical graduate concentration above the national average for the particular specialty. Of the 759 institutions for which the foreign medical graduate concentration was known, in ten percent of the institutions the house staff was all foreign medical graduates and in 16.5 percent there were almost no foreign medical graduates (Table 3). Approximately 43 percent of all house staff served in institutions with an above average concentration of foreign medical graduates. This was 26 percent of United States medical graduates and 81 percent of foreign medical graduates.

The hospital categories with the greatest percentage of institutions with a foreign medical graduate concentration above the national average were: state independent (69.2 percent); private independent (61.3 percent); local independent (60 percent); private undergraduate associated (59.5 percent); and state undergraduate associated (58.8 percent).*

Of the institutions with almost all foreign medical graduates, two-thirds were either state independent or private independent institutions. Institutions which were all foreign medical graduates had a total of 1,376 house officers, which was 3.1 percent of the total house staff or 10.3 percent of the foreign medical graduate staff. Institutions with almost no foreign medical graduates had 2,083 house officers, which was 4.7 percent of the total house staff, or 6.7 percent of the United States medical graduates.

Overall, the greater the degree of affiliation with a medical school, the less likely an institution was to have an above-average foreign medical graduate concentration. Of the principal and graduate associated institutions, 40.1 percent had a foreign medical graduate concentration which exceeded the national average; 56.3 percent of the undergraduate affiliated institutions and 60.0 percent of the independent institutions had such a concentration. This progression also obtained for all ownership categories except federal hospitals, although it should be noted that some categories had few institutions.

The Mid-Atlantic region had the greatest proportion of institutions with a foreign medical graduate concentration above the national average (72.9 percent) followed by the Northeast and Midwest, which had 60.6 percent and 60.5 percent respectively. More than half the institutions which are all foreign medical graduates were in the Mid-Atlantic region; there were no such institutions in either the Southwest or West. Institutions with no foreign medical graduates tended to be located in the West.

Although both Medicare and Medicaid, when considered as a percentage of patient care revenues, had slightly higher means in institutions with higher concentrations of foreign medical graduates, the differences were not statistically significant. The average dollar amount per institution was

---

*For discussion of the hospital categories see Chapter 1, Part I and Chapter 1, Part II.

TABLE 3. DISTRIBUTION OF INSTITUTIONS BY FOREIGN MEDICAL GRADUATE CONCENTRATION IN THE INSTITUTION (1975) (percent)

Hospital classification	Number institutions	No FMGs b/	Below average FMGs	Above average FMGs	All FMGs b/
Total	759 a/	16.5	33.6	39.8	10.1
Federal					
Principal/grad. assoc.	80	5.0	57.5	33.8	3.8
Undergraduate assoc.	8	37.5	50.0	12.5	0.0
Independent	20	50.0	25.0	20.0	5.0
State					
Principal/grad. assoc.	43	9.3	60.5	27.9	2.3
Undergraduate assoc.	17	5.9	35.3	35.3	23.5
Independent	52	11.5	19.2	40.4	28.8
Local					
Principal/grad. assoc.	49	14.3	46.9	38.8	0.0
Undergraduate assoc.	6	0.0	50.0	33.3	16.7
Independent	20	15.0	25.0	45.0	15.0
Private					
Principal/grad. assoc.	177	23.2	32.8	42.4	1.7
Undergraduate assoc.	111	13.5	27.0	52.3	7.2
Independent	168	17.3	21.4	38.7	22.6
Unknown	8	25.0	37.5	37.5	0.0

Source: Institute of Medicine National Survey Questionnaire.

a/There were an additional 58 institutions which could not be classified by foreign medical graduate concentration.

b/Institutions with less than 0.5 percent were considered to have none; institutions with more than 99.5 percent foreign medical graduates were considered to be all foreign medical graduates.

lower in institutions with almost no foreign medical graduates and those which were almost all foreign medical graduate because these institutions tended to be smaller. Two-thirds of these institutions were under 400 beds; less than half of the other institutions were that size.

When Medicare as a percent of patient care revenues was examined, the distribution for all institutions except those with below average concentrations of foreign medical graduates were similar, and the mean for each of these categories was slightly above the overall mean of 25.34 percent (Table 4).

The distribution of institutions according to Medicaid as a percent of patient care revenue was somewhat different in that institutions which were almost all foreign medical graduates had a higher mean percent of Medicaid than the other institutions, with a greater proportion of the institutions in the 41 to 60 percent category (Table 5).

The steering committee found that Medicare and Medicaid funds do not support institutions with high concentrations of foreign medical graduates to a greater extent than such funds support other institutions.

Selection of House Officers

Foreign medical graduates, like their United States colleagues, seek to obtain the best available training experience and opportunity, but many often lack information on which to base such a decision, and certain training positions are not as readily available to them. Data from the Institute of Medicine's field studies were useful in considering selection criteria of both the house officer and the program director.

Directors of 415 programs listed criteria considered in the selection of house staff. Sixty-three percent of all program directors indicated that United States medical graduates are preferred, compared to 43 percent of the directors of programs which were all foreign medical graduates. Certification by the Educational Commission for Foreign Medical Graduates is required for admission to an AMA-approved program, but only 60 percent of the program directors indicated that this was a selection criterion for non-United States medical graduates. More than 80 percent of directors of the programs with high foreign medical graduate concentrations, however, listed this as a selection criterion. Thirty percent of the respondents indicated that citzenship is a factor in selection.

Although these three criteria are the only ones relating directly to the foreign medical graduate, other selection criteria tend to favor United States medical graduates. For example, 92 percent of the respondents used a personal interview, 90 percent relied on recommendations, and 40 percent used national boards or the FLEX exam, which is not generally taken by foreign medical graduates before graduate medical training. Eighty-four percent of the directors of programs with low foreign medical graduate

TABLE 4. PERCENT DISTRIBUTION OF INSTITUTIONS BY PATIENT CARE REVENUES FROM MEDICARE AND FOREIGN MEDICAL GRADUATE CONCENTRATION IN INSTITUTIONS, 1975

Concentration	Number institutions	Medicare as a percent of patient care revenue					Mean Medicare percent a/	Medicare dollars a/	
		0-20%	21-40%	41-60%	61-100%	Unk.		Total	Average
Total	643	26.6	52.9	6.2	1.2	13.1	25.34	2,685,600,000	4,804,293
No FMGs b/	106	21.7	50.0	7.5	.9	19.8	25.87	285,000,000	3,352,941
Below average FMGs	197	35.0	46.2	6.6	1.6	10.7	24.71	892,700,000	5,072,159
Above average FMGs	267	23.2	61.0	5.2	1.1	9.4	26.16	1,302,400,000	5,381,818
All FMGs b/	73	23.3	45.2	6.8	1.4	23.3	26.13	205,500,000	3,669,643

Source: Institute of Medicine National Survey Questionnaire.

a/Based on institutions where Medicare as a percent of patient care revenue was known.

b/Institutions with less than 0.5 percent foreign medical graduates were considered to have none; institutions with more than 99.5 percent foreign medical graduates were considered to be all foreign medical graduates.

TABLE 5. PERCENT DISTRIBUTION OF INSTITUTIONS BY PATIENT CARE REVENUES FROM MEDICAID AND FOREIGN MEDICAL GRADUATE CONCENTRATION IN INSTITUTIONS, 1975

Concentration	Number institutions	Medicaid as a percent of patient care revenue					Mean Medicaid percent a/	Medicaid dollars a/	
		0-20%	21-40%	41-60%	61-100%	Unk.		Total	Average
Total	643	69.2	10.6	4.4	2.2	13.7	13.45	1,330,300,000	2,296,937
No FMGS b/	106	65.1	6.6	3.8	2.8	21.7	12.54	113,400,000	1,336,265
Below average FMGs	197	72.1	11.2	3.6	2.5	10.7	13.92	501,800,000	2,851,136
Above average FMGs	267	72.7	11.6	4.5	1.5	9.7	12.71	629,300,000	2,611,203
All FMGs b/	73	54.8	11.0	6.8	2.7	24.7	16.55	85,800,000	1,560,000

Source: Institute of Medicine National Survey Questionnaire.

a/Based on institutions where Medicaid as a percent of patient care revenue was known.

b/Institutions with less than 0.5 percent foreign medical graduates were considered to have none; institutions with more than 99.5 percent foreign medical graduates were considered to be all foreign medical graduates.

concentrations indicated that position in medical school class was a factor in selection, but only 54 percent of the directors of programs with high foreign medical graduate concentrations checked this factor.

United States medical graduates were more than four times as likely to have participated in the National Intern and Resident Matching Program (NIRMP) than foreign medical graduates. For the United States medical graduates and the foreign medical graduates who did use the NIRMP, the rate of placement in the present position through NIRMP was almost identical. Program directors in all types of institutions tended to use NIRMP for United States medical graduates and United States foreign medical graduates more often than for foreign medical graduates. Program directors in high foreign medical graduate institutions tended to use NIRMP for their foreign medical graduates more often than other program directors.

Selection of Training Positions

Foreign medical graduates and United States medical graduates were asked to rank certain factors according to importance in choosing a specialty. Although the patterns were quite similar, foreign medical graduates, more often than United States medical graduates, ranked as most important the "need for practicing physicians in specialty" and "availability of training positions in specialty" and ranked less often "a strong interest in the area of specialization," which may indicate that they tend to occupy residual slots.

The factors ranked as most important in selection of a training institution were different for foreign medical graduates and United States medical graduates. The single most important factor for United States medical graduates who responded was "reputation of the institution in the chosen specialty" which was cited by more than twice as many respondents as the next most often cited factor, "general reputation of the institution." For foreign medical graduates, approximately the same percentage ranked one of these two factors as the most important, but more foreign medical graduates cited "general reputation of the institution" (45.2 percent compared to 39.9 percent). The geographic location of the institution was ranked as the most important factor by nearly twice as many United States medical graduates as foreign medical graduates.

Also supporting the view that foreign medical graduates occupy residual positions was the fact that 92.2 percent of United States medical graduates were in the specialty of their first choice compared to 81.9 percent of foreign medical graduates. Seventy-six percent of United States medical graduates were in the hospital of their first choice compared to 78 percent of foreign medical graduates.

When foreign medical graduates were asked to indicate their specialty of first choice, the percentage selecting all hospital-based specialties was lower than the percentage actually serving in such specialties. Similarly, the percentage selecting ophthalmology and orthopedic surgery as the first choice was greater than the percentage serving in those specialties.

The data collected from program directors which indicated that United States medical graduates are preferred, and data from house officers which showed that foreign medical graduates tended to be in the specialty of first choice less often than United States medical graduates and that foreign medical graduates slightly more often cited "availability of training positions in specialty" as a factor for specialty choice indicated that to a certain extent foreign medical graduates tended to occupy less competitive or less desirable training positions.

REFERENCES

Chapter 3

1
Report on the National Advisory Commission on Health Manpower, vol 2 (Washington, D.C.: Government Printing Office, November 1967).

2
Coordinating Council on Medical Education, *Physician Manpower and Distribution: The Role of the Foreign Medical Graduate* (September 5, 1974).

3
Directory of Approved Internship and Residencies, 1974-75 (Chicago: American Medical Association, 1975), p. 21.

4
Rosemary Stevens et al., "Physician Migration Reexamined," *Science* 190 (October 31, 1975): 439-42.

5
U.S. Department of Justice, *1974 Annual Report: Immigration and Naturalization Service* (Washington, D.C.: Government Printing Office, 1974).

6
U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, Bureau of Health Resources Development, "A Clinical View of the Foreign Medical Graduate," a position paper prepared by John Gordon Freyman, February 1975.

7
Irene Butter et al., *State Policies on Limited and Temporary Licensure for Foreign Medical Graduates* (Ann Arbor, Michigan, July 1975), pp. 1-14.

PART II—RESOURCE PAPERS

Chapter 1

TEACHING HOSPITALS

The institutional focus of this study is the teaching hospital, which by itself or with one or more medical schools* or other teaching hospitals, provides patient care, conducts graduate medical education programs, and often is the site of clinical research. The organizational and financial relationships which serve these functions vary in each institution.

Defined in the Medicare law as the site of graduate training programs approved by the American Medical Association (AMA), the American Osteopathic Association (AOA), or the American Dental Association (ADA),** teaching hospitals differ markedly by ownership, physical size, scope of services offered, and numbers and kinds of educational programs. Sixty-eight percent of all teaching hospitals conduct their programs in conjunction with a medical school, 1/ although the strength of this association varies considerably. In addition to graduate medical education programs, teaching hospitals may offer clinical education to undergraduate medical students as well as medical school faculty appointments for selected staff physicians. In 1973-74, 91 percent of all house officers received their graduate medical education in hospitals associated to some extent with medical schools.

SAMPLE SELECTION

In academic medical centers, the medical school department is responsible for patient care and undergraduate and graduate medical education. The medical school department chairmen are responsible for the education programs, and, often, the clinical services in one or more associated hospitals. Therefore, they are at the center of decisions made about the training programs and the patient care delivered on the teaching services.

To ensure that the data reflected this link between the schools and their associated hospitals, and since more than two-thirds of the teaching hospitals reported in the AMA Directory of Approved Internships and Residency Programs, 1973-74 are affiliated with medical schools, a three-part sample was drawn: teaching hospitals affiliated with medical schools, teaching hospitals not affiliated with medical schools, and osteopathic teaching hospitals.

---

*"Medical" refers to both allopathic and osteopathic medicine unless otherwise noted.

*Oral surgery residents are included in hospital costs for support of intern and resident training programs as reimbursed by Medicare and other third party payors.

Fifteen medical schools were selected from a stratified random sample, with controls beyond stratification. The stratification criteria were geography -- the country was divided into six geographic areas excluding Puerto Rico and Hawaii; medical school ownership -- public or private; and the size of the academic medical complex as reflected by the number of house officers in programs in affiliated hospitals. The probability of a given school being selected and the number of schools selected from each group were weighted by the number of house staff in the complex. All major teaching hospitals (including 15 VA hospitals) affiliated with the medical school were automatically included, and one minor affiliated hospital was selected randomly. Following this procedure, 65 medical school affiliated non-federal hospitals were drawn. In the course of the field study, this number was changed to 66 since some hospitals were added or dropped when original information about affiliation proved incorrect.

Seven non-affiliated hospitals were selected from those which reported at least 15 filled house officer positions and 150 beds. The non-affiliated hospitals were stratified according to their number of house officers, ownership, number of beds, and geographic area.

The osteopathic schools and hospitals were selected differently. Two osteopathic schools (with one hospital each) were drawn from the seven that were fully operational in late 1974. One was drawn from the group of three that owned their hospitals and one was drawn from the group of four that did not. Six hospitals were drawn from the 49 osteopathic teaching hospitals which have graduate education programs independent from osteopathic schools.

Thus, the final sample consisted of 96 hospitals: 15 VA, 68 associated with a medical school, and 13 not associated with a school for purposes of graduate medical education. Nine public and eight private medical schools were selected as the sites for study (Table 1).

Medical schools and teaching hospitals derive mutual benefits from their associations. The hospital provides the medical school the environment necessary for the teaching of clinical medicine, both to graduate and undergraduate medical students. The medical school, through its faculty and hous officers, provides patient care services in the hospital, and continuing education to all physicians involved in the training programs.

TABLE 1. CLASSIFICATION OF SAMPLE MEDICAL SCHOOLS

Region	Total	Ownership	
		Public	Private
Total	17	9	8
Northeast	1	0	1
Mid-Atlantic	5	1	4
South	3	2	1
Southwest	1	1	0
Midwest	5	3	2
West	2	2	0

Source: Institute of Medicine.

Medical schools may be associated with several hospitals. Those medical schools which receive state or local appropriations may additionally be required to provide services in government-owned hospitals. In response to findings that physicians tend to locate their practices in the area where they received their graduate training, federal and state legislatures might require medical schools to form associations with hospitals in small towns or rural areas where there is a perceived physician shortage.

Teaching hospitals which are independent from medical schools also conduct graduate medical education programs. However, with the phasing out of the freestanding internship effective July 1, 1975, the number of such hospitals has declined. Following that date, hospitals wishing to offer internship training also were required to offer residency training or to be associated with institutions that did.

In the course of the study, 86 hospitals (compared to 83 drawn in the sample) were identified as being associated with 17 sample medical schools for the purpose of providing the clinical experience necessary to graduate (and undergraduate, to a lesser extent) medical education. Ten hospitals (compared to 13 drawn in the sample) were studied as representative of teaching institutions with no medical school association. The differences between the sample as drawn and the sample as studied resulted from on-site clarification of relationships between the school and hospital.

The study group categorized the hospitals according to the type of association they have with a medical school for clinical medical education, and their ownership (Table 2).

TABLE 2. CLASSIFICATION OF THE SAMPLE HOSPITALS

Ownership	Total	Principal	Graduate associated	Undergraduate associated	Independent
Total	96	32	44	10	10
Private	53	9 a/	24	10 b/	10 c/
State	13	13 d/	0	0	0
Local	15	4	11	0	0
Federal	15	6	9	0	0

Source: Institute of Medicine field data.
a/Includes five university-owned hospitals, one of which is osteopathic.
b/Includes five osteopathic hospitals.
c/Includes one osteopathic hospital.
d/Includes nine university-owned hospitals.

EDUCATION ASSOCIATION

Principal teaching hospitals are those in which the medical school clinical department chairmen direct the graduate training programs in the hospitals, determine, in consultation with others, the number of house officer positions and take part in the selection of house officers. At least 90 percent of the teaching physicians in these hospitals have faculty appointments at associate medical schools, and all house staff in these hospitals are enrolled in "integrated" training programs which involve the medical school department and the clinical services in two or more hospitals. Principal teaching hospitals in the study sample include large university hospitals with as many as 23 graduate training programs and more than 300 physicians with faculty appointments, as well as smaller specialty hospitals, such as children's hospitals, in which all physicians hold faculty appointments and the graduate education program is linked directly to a single department in the medical school.

Graduate associated teaching hospitals have at least one medical school integrated graduate training program and also may operate "independent" graduate programs with no medical school involvement. Some of the chiefs of service at these hospitals are department chairmen at the medical school or work closely with the academic department chairmen at the medical school. Medical school faculty members supervise the house staff in the integrated programs. Other teaching physicians not on the faculty may be responsible for training the house officers in the hospital's independent graduate programs. At least 30 percent of the teaching physicians in each of these hospitals have faculty appointments, and at least one clinical service in this type of hospital has a close relationship with a medical school department.

Undergraduate associated teaching hospitals have independent graduate medical education programs, although one or more medical schools may use the hospital for third and fourth year medical student clinical clerkships. Because of his responsibility for undergraduate medical education, the academic department chairman plays a major role in selecting the clinical chiefs of service as well as other faculty teaching physicians at the hospital. However, the medical school department chairman and his faculty are not involved directly in the hospital's graduate medical education programs, nor do they select the residents.

Independent teaching hospitals are unrelated to medical schools for purposes of either graduate or undergraduate medical education. The training programs in these hospitals are administered and supervised by the hospital medical staff. The hospital administration and medical staff determine the number of house officers to be trained, select the candidates, and supervise the training programs. No undergraduate medical students receive training in these hospitals.

Some general characteristics of the sample hospitals are shown in Table 3.

OWNERSHIP

In addition to education association characteristics, the 96 teaching hospitals were grouped into four ownership categories.

Of the 96 hospitals, 53 are privately owned and operated and are governed by independent boards of directors. One is a proprietary hospital and the others are voluntary, nonprofit. These hospitals meet their financial needs primarily from revenues from patient care and secondarily from gifts and endowments. Varying amounts of federal and state government dollars flow into these hospitals from the Medicare and Medicaid programs, with smaller sums from government-sponsored research and contracts. Medicare patients accounted for 32 percent of inpatient days at these hospitals; Medicaid accounted for 13 percent.

Thirteen of the 96 hospitals studied are owned and operated by eight state governments. Nine of the 13 are part of and are operated directly under the auspices of a state university medical school. These hospitals serve a wide range of patients, including substantial numbers of low-income

TABLE 3. DISTRIBUTION OF SAMPLE HOSPITALS BY SELECTED CHARACTERISTICS

Characteristics	Total	Principal	Graduate associated	Undergrad. associated	Independe
Total hospitals	96	32	44	10	10
Region					
Northeast	14	2	4	-	8
Mid-Atlantic	28	10	12	4	2
Midwest	20	6	10	4	-
South	13	7	5	1	-
Southwest	9	2	6	1	-
West	12	5	7	-	-
Number beds					
150	9	5	2	1	1
151-300	22	4	8	5	5
301-450	24	6	14	1	3
451-600	16	4	10	1	1
600	25	13	10	2	-
Number programs					
5	30	6	16	4	4
6-10	21	4	10	2	5
11-20	35	12	18	4	1
20	10	10	-	-	-
Number house officers					
50	44	8	21	7	8
51-100	20	9	10	-	1
101-200	16	2	11	2	1
201-400	9	7	2	-	-
400	7	6	-	1	-
Occupancy rate					
50 percent	1	1	-	-	-
51-70	15	3	11	1	-
71-80	30	15	14	1	-
81-90	42	12	17	6	7
90	8	1	2	2	3
Number admissions					
1,000	40	13	14	5	8
10,001-15,000	27	7	18	1	1
15,001-20,000	7	1	3	2	1
20,001-30,000	15	5	8	2	-
30,000	7	6	1	-	-

Source: Institute of Medicine field data.

people, and, since all 13 are principal teaching facilities of medical schools, they serve as centers of sophisticated medical care, research and education. These institutions meet their financial needs from revenues from patient care, state appropriations, and federal program dollars. Medicare and Medicaid together sponsored approximately 34 percent of the inpatient days and 28 percent of revenues in these hospitals in fiscal year 1974. In addition to Medicaid payments, the eight state governments contributed an average of $7,000,000 per hospital, or 30 percent of each hospital's total revenue. The remaining revenues came from patient care monies, gifts, and other hospital activities.

Fifteen of the 96 hospitals studied are owned by county or city governments. These institutions traditionally have been the primary source of health care for indigent patients in their service areas, and before the Medicare and Medicaid programs, only minimal amounts of revenues came to them directly from patients or their third party sponsors. The institutions were dependent on direct municipal or county appropriations. Today, the revenues of these hospitals derive from Medicare and Medicaid, some state appropriations, and municipal or county appropriations. Medicare and Medicaid patients account for 19 and 25 percent of inpatient days, respectively, in these hospitals.

The 15 federal hospitals included in the sample of 96 are all owned and operated by the Veterans Administration. The VA hospitals do not submit bills for patient care services; instead, each hospital works within an annual operating budget established by the central office.

TEACHING HOSPITAL REVENUES AND EXPENDITURES

Whether owned by federal, state, or local governments, public hospitals always have been dependent on direct government appropriations for their support. Before the federal government took a major role in financing care for low-income patients, state and local government-owned hospitals were supported by full appropriations of a budgeted amount, with any revenues returned to the government's general or restricted fund. Today, many public hospitals receive a deficit appropriation representing the difference between the budgeted amount and anticipated revenues.

Local government hospitals in the sample received 63 to 74 percent of their revenues from third party payors, including 39 percent from Medicare and Medicaid (Table 4). Government appropriations accounted for 26 to 30 percent of revenues at these hospitals.

Voluntary nonprofit hospitals, however, always have received their major support from individual payments for patient care services. In the sample hospitals in this category, third party payments represented 87 to 90 percent of total revenues, with 35 to 43 percent from Medicare and Medicaid. Gifts, investments, and endowments accounted for three to seven percent of revenues

TABLE 4. SOURCES OF REVENUES IN SAMPLE HOSPITALS (FY 1974) (percent)

Source of revenue	Principal			Graduate associated		Undergrad. assoc.	Independent
	State	Local	Private	Local	Private	Private	Private
Total revenues	100	100	100	100	100	100	100
Patient care	65	74	88	63	88	87	90
Medicare	14	16	22	15	29	26	25
Medicaid	14	23	13	24	8	15	18
Other payors	37	35	53	25	50	47	48
State or local government appropriations	30	26	0	30	1	1	a/
Medical school transfer	a/	0	1	a/	a/	a/	0
Gifts, investments, and endowments	1	b/	4	1	7	5	3
Other b/	4	b/	6	6	4	7	7

Source: Institute of Medicine field data.

Note: Figures are based on patient care charges before adjustments for such items as bad debts and discounts to staff. The majority of hospitals did not allocate adjustments among payors. Excluded are VA hospitals which are funded wholly by the federal government and children's hospitals which receive Medicare reimbursement for renal dialysis unit costs only. Totals may not add to 100 percent due to rounding.

a/Less than 0.5 percent.

b/Includes revenues from research grants, government contracts, and auxiliary enterprises.

in the voluntary hospitals, but less than one percent in the public hospitals. Remaining revenues derived from research grants, government contracts, and auxiliary enterprises such as the gift shop and cafeteria, but were less than ten percent in any of the sample hospitals.

Table 5 shows that the hospitals in the sample had similar expenditure categories. Between 52 and 64 percent of all expenditures were for salaries (five to ten percent for physicians and house officers). The remainder was spent on supplies, equipment, overhead, and contracted services, or represented payment to a medical school for services provided, such as teaching time of faculty.

TABLE 5. EXPENDITURES IN THE SAMPLE HOSPITALS (FY 1974) (percent)

Expenditure category	Principal			Graduate associated		Undergrad. associated	Independent
	State	Local	Private	Local	Private	Private	Private
Total expenditures	100	100	100	100	100	100	100
Total salaries	64	54	52	56	56	58	59
Physicians	4	6	2	5	2	6	6
House officers	6	5	3	5	3	4	4
Other personnel	55	43	47	46	51	49	49
Contracted services	1	0	1	2	3	1	2
Transfer to medical school	1	0	5	1	1	1	0
All other expenditures	34	46	42	41	40	41	38

Source: Institute of Medicine field data.
Note: Totals may not equal 100 percent due to rounding.

Hospitals which pay for the supervisory and teaching services of physicians may claim reimbursement for these costs under Part A of Medicare. Such services are usually provided jointly with patient care. If the physician himself, rather than a house officer, provides a personal and identifiable service to a patient, he may charge a fee and receive payment under Part B of Medicare.

Because of the difficulties of accurately allocating the physician's time between supervision and teaching activities and those associated with patient care, and because of possible conflicts over Part B billing, some sample hospitals did not claim for reimbursement of these costs under Part A At other hospitals, physicians donated their time for these services, although in some training programs they were paid a salary by the medical school.

In those sample hospitals which did claim reimbursement for supervision and teaching services, variations in accounting and reporting procedures precluded a comparison of the extent of such costs among the institutions. The standard cost report which is submitted to Medicare in support of claims for reimbursement does not provide for the separate reporting of these costs. Institutions differed as to whether they allocated all costs to the graduate medical education program or dispersed them among other cost centers. In several state-owned teaching hospitals, the amount involved was included in the state payroll figure for combined medical school and hospital salaries.

Although inter-institutional comparisons were not possible, the study group used teaching physician activity data and estimated hourly costs to compute the total potential costs of supervisory and teaching physician services in the 81 non-federal sample hospitals. It was estimated that if all hospitals had claimed, the total costs to the Medicare program in 1974 would have been between $9 and $12 million for these hospitals.

* * *

FINDINGS

Varying amounts of federal and state government dollars flow into hospitals from the Medicare and Medicaid programs. On the average, Medicare and Medicaid funds make up 37 percent of total revenues in the 81 non-federal sample hospitals.

Because of concern over possible conflict under Part B, not all hospitals which could do so claim reimbursement from Medicare for supervision and teaching services of teaching physicians.

REFERENCE

Chapter 1

[1] Anne E. Crowley, ed., *Medical Education in the United States, 1973-74*, supplement: *The Journal of the American Medical Association* 23 (1975): 102-4.

Chapter 2

TEACHING PHYSICIANS

he congressional charge asks for recommended methods of payment by Medicare nd Medicaid for physician services in teaching hospitals. This chapter iscusses the physicians who provide those services, teaching physicians. ncluded are a discussion of the activities of teaching physicians and the ime they spend in these activities, and teaching physician financial rrangements with medical schools and hospitals.

HO IS A TEACHING PHYSICIAN?

lthough federal Medicare regulations use the term "teaching physician" and ynonymously, "supervising physician," the term is not defined explicitly. nstead, the regulations define an attending physician in a teaching setting; hat is, they define a relationship between physician and patient rather han a physician.

o distinguish the physicians discussed in this chapter, the study group dopted the following definition: a teaching physician is any fully qualiied (licensed) physician (M.D., D.D.S., or D.O.) not enrolled in a raduate training program who is responsible for or directly involved in he medical care of patients, and is also responsible for the instruction r supervision of interns, residents, or fellows.

his definition identifies the physicians who would be affected by changes n Medicare or Medicaid payment methods: physicians engaged in patient are and in graduate medical, dental (limited to oral surgery), or osteoathic education. Included are physicians who receive a full or partial alary or other compensation from a medical school or teaching hospital, s well as physicians who donate their time to a graduate education program. he definition excludes physician administrators who teach but have no responsiilities for patient care. It also excludes physicians whose teaching is imited to undergraduate medical, dental, or osteopathic students.

ot all physicians in teaching hospitals are teaching physicians as defined bove. Table 1 shows the number of staff physicians (physicians with admitting privileges), the number of teaching physicians, and the ratio of teaching physicians to staff physicians for the 81 non-federal hospitals in the sample. Teaching physicians represent about 60 percent of total staff of hospitals in the sample. The proportion of teaching physicians is highest (76 percent) in principal teaching hospitals and lowest (35 percent) in independent teaching hospitals.

TABLE 1. STAFF PHYSICIANS AND TEACHING PHYSICIANS IN SAMPLE HOSPITALS (1975)

Hospital type	Total staff physicians	Staff physicians who are teaching physicians	Percent of teaching physicians
All	24,948	15,082	60
Principal	11,913	9,061	76
Associated	10,132	4,999	49
Independent	2,903	1,022	35

Source: Institute of Medicine National Survey Questionnaire and field data.
Note: Since physicians may be staff or teaching physicians at several hospitals, some physicians may be counted more than once.

TEACHING PHYSICIAN ACTIVITIES

The study group definition of a teaching physician is based on two of his major activities - patient care and teaching of graduate medical students. Teaching physicians also spend time in other professional activities, such as teaching undergraduate medical and other health professional students, research, professional development, and hospital or medical school administration. For analytic purposes, teaching physician professional activities can be divided into those activities directly related to the major teaching hospital programs of education, research, and patient care, or "major" activities, and those that support all programs, or "support" activities.

Because education, research, and patient care in teaching hospitals are interrelated, teaching physicians spend much of their time in simultaneous, or joint, activities. A common example of a joint activity is rounds, duri which care is rendered to patients by a team of teaching physicians, house officers, medical students, and sometimes nursing or allied health students The students learn while observing and participating in patient care. The teaching physician is teaching while supervising or providing care. Thus, rounds result in both education and patient care.

Another example of simultaneous education and patient care is in the outpatient setting, where the teaching physician sees his patients with house officers or other students present. Still another is the teaching radiologist and radiology resident reviewing x-rays together. Much of graduate medical education consists of the interaction of teaching physicians and house officers in providing patient care.

To determine how teaching physician time was spent, a survey was conducted at each of the sample institutions during the spring of 1975. Each teaching physician was asked to record his activities for seven consecutive days and to assign those activities to one of the categories in Table 2. Joint activities were assigned to two or more categories: teaching and patient care, teaching and research, research and patient care, or teaching, patient care, and research. For teaching activities, the physicians were requested to specify the kinds of students being taught. Personal time or professional activities outside the scope of the physician's employment were to be recorded as "other." A total of 8,237 teaching physicians were given the activity survey packets, of which 5,285 responded, for a response rate of 64.2 percent. The data presented below are based on the total hours reported in professional activities, regardless of where the activities took place.

Almost half of full-time teaching physician time was spent in pure activities; about 20 percent was spent in joint activities, particularly joint teaching and patient care (Table 3). Support activities accounted for the remaining 30 percent of their time, about half of which was spent in professional development activities.

The distribution of time varied by specialty. Physicians in the surgical and hospital-based specialties spent more time in joint activities than, for example, psychiatrists. Physicians in medicine and medical subspecialties spent a greater proportion of their time in research than physicians in any other specialty.

About 40 percent of full-time physician time was spent in pure patient care activities, of which 12 percent was in inpatient settings and seven percent was in outpatient settings. The rest was spent in operating rooms, laboratories, x-ray areas, and emergency rooms.

Part-time teaching physicians reported that more of their time was spent in patient care and less in research than full-time physicians (Table 4). They spent 60 percent of their time in patient care, of which 15 percent was inpatient and seven percent was outpatient care.

Table 5 shows how full-time teaching physician teaching time was spent with different types of students. On the average, these physicians spent one-third of their time in teaching activities, over half of which was joint teaching and patient care. Most teaching time was spent with interns, residents, or fellows; or with interns, residents, or fellows (IRF) and medical, osteopathic, or dental students (MOD). Part-time teaching physicians

TABLE 2. DEFINITIONS AND EXAMPLES OF TEACHING PHYSICIAN ACTIVITIES

Activity and definition	Examples
Major activities	
Teaching Teaching in classroom, laboratory, clinical or other setting. Includes supervision of students delivering patient care. The term "students" includes undergraduate medical, osteopathic, dental, and nursing students; interns, residents, and fellows; and other students in health-related fields.	Conducting and preparing for lectures, rounds, conferences (didactic or clinical)
Patient care Examining, diagnosing, or treating a patient in any setting. Includes surgical, radiological, and laboratory procedures.	Chart review and dictation Patient consultation Histories and physicials
Research and research administration Sponsored research	Bench work Writing and presenting projects Reading related to research projects
Support activities	
Patient Administration Administration related to patient care. Service on hospital committees and other hospital-wide activities related to the delivery of health care.	Autopsies Attending hospital committee meetings (for example, PSRO)
Other administration General administration and other internal services not related to patient care.	Preparing budgets Attending medical school meetings Reviewing specialty board examinati
Professional development Activities to keep oneself abreast of developments in one's field.	Attending professional meetings Reading journals Publication preparation, excluding sponsored research
Other activities	
All activities which do not relate to either your faculty appointment or service to a graduate training program. Also includes all activities which do not fall into the above categories.	Personal time (for example, eating and sleeping) Private practice separate from medi center responsibilities Vacation, illness

TABLE 3. TIME PER WEEK OF FULL-TIME TEACHING PHYSICIANS, BY ACTIVITY AND SPECIALTY (percent) (spring, 1975)

Activity	All specialties	Medical a/	Surgical b/	Hospital-based c/	Psychiatry d/
All activities	100	100	100	100	100
Total major activities	69	68	71	71	63
Pure activities	46	47	42	44	51
Teaching (T)	11	10	10	12	11
Patient care (PC)	20	17	22	21	25
Research (R)	15	19	10	11	14
Joint activities	23	21	29	27	12
T/PC	20	18	26	25	9
T/R	2	2	1	1	1
R/PC	1	1	1	1	1
T/PC/R	1	1	1	1	e/
Total support activities	31	32	29	29	38
Patient administration	3	3	3	3	5
Other administration	10	10	9	8	13
Professional development	16	16	15	16	17
Combined support activities	2	3	3	2	3
Number respondents	3,411	1,588	659	846	302

Source: Institute of Medicine field data.

Note: Figures may not add to 100 percent due to rounding.

a/Medical specialties include family and general practice, general internal medicine, medical subspecialties, pediatrics and pediatric subspecialties, emergency medicine, preventive medicine, and ambulatory medicine.

b/Surgical specialties include general surgery, surgical subspecialties, obstetrics, and gynecology.

c/Hospital-based specialties include radiology, pathology, anesthesiology, and physical medicine.

d/Psychiatric specialties include psychiatry and child psychiatry.

e/Less than 0.5 percent.

TABLE 4. TIME PER WEEK OF PART-TIME TEACHING PHYSICIANS BY ACTIVITY AND SPECIALTY (percent) (spring, 1975)

Activity	All specialties a/	Medical	Surgical	Hospital-based	Psychiatry
All activities	100	100	100	100	100
Total major activities	74	74	77	70	70
Pure activities	53	55	48	47	58
Teaching (T)	10	8	9	10	15
Patient care (PC)	38	42	35	33	37
Research (R)	5	5	5	3	6
Joint activities	21	19	29	23	11
T/PC	20	18	27	22	11
T/R	1	*	1	1	*
R/PC	*	*	*	*	*
T/PC/R	*	*	*	*	*
Total support activities	26	26	23	30	31
Patient administration	4	4	3	6	3
Other administration	7	6	6	9	9
Professional development	14	15	13	15	16
Combined support activities	2	1	2	1	2
Number respondents	800	320	267	58	152

Source: Institute of Medicine field data.

Note: Figures may not add to 100 percent due to rounding; less than 0.5 percent is represented by an asterisk.

a/See footnotes to Table 3 for definitions of specialty groups.

TABLE 5. TIME PER WEEK OF FULL-TIME PHYSICIANS IN TEACHING ACTIVITIES BY TYPE OF STUDENT TAUGHT AND SPECIALTY (percent) (spring, 1975)

Activity	All specialties a/	Medical	Surgical	Hospital-based	Psychiatry
Total teaching	100	100	100	100	100
Pure teaching	32	34	26	31	59
IRF b/	8	6	5	11	19
MOD c/ students	5	6	4	5	8
IRF and MOD students	5	6	6	4	5
Other students	3	4	2	2	9
No students reported	10	12	8	10	11
Teaching/patient care	62	58	69	65	41
IRF	30	23	30	42	16
MOD students	4	4	3	3	4
IRF and MOD students	21	24	29	13	11
Other students	2	2	1	2	5
No students reported	5	5	6	5	5
Other joint teaching d/	7	9	5	4	8
IRF	3	3	2	2	2
MOD students	*	*	*	*	*
IRF and MOD students	1	1	1	*	2
Other students	1	1	*	1	2
No students reported	2	3	2	1	2
Number respondents	3,411	1,588	649	846	302

Source: Institute of Medicine field data.

Note: Figures may not add to 100 percent due to rounding; less than 0.5 percent is represented by asterisk.

a/See footnotes to Table 3 for definitions of specialty groups.

b/Interns, residents, and fellows.

c/Medical, osteopathic, and dental.

d/Teaching and research; teaching, research, and patient care.

(Table 6) spent their teaching time similarly. Both full-time and part-time psychiatrists spend considerably less time in joint teaching and patient care than do physicians in other specialties.

TEACHING PHYSICIAN COMPENSATION ARRANGEMENTS

Teaching physicians have several different kinds of compensation arrangements with hospitals and medical schools. Many teaching physicians are employees of these institutions; some have contractual agreements covering specific services or time; others have no financial arrangements with any institution. It is not uncommon for a teaching physician to have financial arrangements with more than one institution. For example, a physician may receive a salary from a medical school and in addition have a contract with a hospital to administer a clinic. He may receive a salary from a hospital and additional compensation from a medical school, or he may receive partial salaries from two hospitals.

A central element of the arrangement between a teaching physician and an institution is control over professional fees. A physician in private practice has complete control over the collection and disbursement of fees; when he has a compensation agreement with an institution, he usually gives up some or all control. In many institutions, practice plans handle fee collection and disbursement. In others, each physician has a separate arrangement. In all cases, however, there is an explicit agreement between the physician and the institution about the collection and use of fees.

Medical School Compensation Arrangements

Teaching physicians with medical school faculty appointments have compensation arrangements generally classified as strict full-time, geographic full-time, part-time, and volunteer.* Strict full-time faculty receive full salary from the medical school; geographic full-time faculty receive a partial salary from the school and the remainder of their compensation from practice earnings. In its purest form, strict full-time implies that any professional fees earned by a faculty member are turned over to the medical school and that his salary, although it may be funded in part by these fees, is fixed and independent from the patient care revenues he generates.** Geographic full-time implies that total income includes a fixed amount paid by the school and a varying amount earned from professional fees.

---

*The Association of American Medical Colleges includes part-time and volunteer in its part-time category, but keeps the distinction between part-time paid faculty and part-time unpaid faculty.

**Obviously, the salary amount must be related to a faculty physician's abilit to generate earnings from practice, and in general it does. The distinction is between a physician's level of compensation that is directly related to hi actual practice earnings and a level of compensation that is related to his general market position. In a few institutions, faculty are compensated wit out regard to their earning capacity; for example, flat salaries are paid by rank without regard to specialty or volume of patient care revenues generate

TABLE 6. TIME PER WEEK OF PART-TIME PHYSICIANS IN TEACHING ACTIVITIES BY TYPE OF STUDENT TAUGHT AND SPECIALTY (percent) (spring, 1975)

Activity	All specialties a/	Medical	Surgical	Hospital-based	Psychiatry
Total teaching	100	100	100	100	100
Pure teaching	32	30	25	30	57
IRF	9	6	7	8	24
MOD students	5	7	4	4	8
IRF and MOD students	6	7	6	4	4
Other students	2	2	2	3	7
No students reported	9	9	7	10	13
Teaching/patient care	66	68	73	66	40
IRF	33	29	40	37	20
MOD students	5	7	5	3	6
IRF and MOD students	19	21	22	18	5
Other students	3	4	1	5	5
No students reported	6	8	6	3	4
Other joint teaching b/	3	3	2	4	3
IRF	1	1	1	2	2
MOD students	*	*	*	1	*
IRF and MOD students	1	*	1	*	*
No students reported	1	1	*	1	1
Number respondents	800	320	267	58	152

Source: Institute of Medicine field data.

Note: Figures may not add to 100 percent due to rounding; less than 0.5 percent is represented by an asterisk.

a/ See footnotes to Table 3 for definitions of specialty groups.

b/ Teaching and research; teaching, research, and patient care.

In actual practice, there are many variations of these "pure" compensation types, although most medical schools continue to use these terms. Many "strict full-time" physicians negotiate their fixed salary on the basis of their actual fee earnings, or receive a bonus if their earnings exceed a certain amount. So-called "geographic full-time" physicians in some medical schools have a fixed ceiling on their income, with any excess fee earnings turned over to the institution.

Fee earnings not only support the physicians, but in some cases are a source of general financial support for the medical school or hospital. The arrangements called "practice plans" are a mechanism for collecting fees and distributing them in predetermined proportions among the physicians, clinical department heads, the medical school dean, and sometimes other parties or special funds. Thus, from the point of view of the institution, the compensation arrangements with physicians attempt to balance several needs, including:

- provision of a level of compensation for physicians that is competitive;
- maintenance of some institutional control over physician activities and earnings;
- maintenance of a balance among the institution's education, research, and patient care purposes;
- provision of an incentive for physicians to generate practice earnings in amounts sufficient to support not only part of their own compensation but also the institution; and
- maintenance of a sufficient flow of patients for education programs.

The compensation structure at any medical school is the result of many factors: the school's traditions and institutional philosophy, the dean's philosophy, the balance of power between the central administration and the faculty, and the sources and amounts of funds available to pay faculty. Central university or state regulations often specify the kinds of compensation arrangements permitted.

Hospital Compensation Arrangements

With major exceptions, physicians are not employees of hospitals. Usually, a physician has a staff appointment which permits him to admit his patients to the hospital, but he has no financial arrangement with the hospital. In this situation, typical of most non-teaching hospitals, the hospital bills the patient for hospital services and the physician bills the patient for his professional fee.

Exceptions are the "hospital-based" physicians, usually found in specialties such as radiology, pathology, anesthesiology, and physical medicine, who ofte do have financial arrangements with hospitals. The arrangements vary. Some physicians receive a salary; others have a contract with the hospital under which the hospital bears the costs of space, equipment, and support personnel; still others rent hospital space, own the equipment, and pay their own support personnel. The physician or physician group may bill professional fees, or the hospital may bill for them. The physician's compensation then comes either directly, through the collection of fees, or indirectly through the hospital. Unless they receive a salary, these physicians usually are not considered hospital employees, but rather as independent contractors.

Many hospitals have physician employees. Veterans Administration hospitals employ all staff physicians on either a full-time or part-time basis. State and municipal hospitals often employ some or all physicians in the same way. The physicians usually receive a salary covering a standard work week. They may be permitted to engage in outside professional activities and receive payment for them, although their activities and income may be monitored by the hospital. During their standard work week, they may bill fees or the hospital may bill for them. In some hospitals, no professional fees are billed.

Certain teaching hospitals have all three kinds of physicians. Independent private physicians make up most of the physician staff; the hospital has contractual arrangements with hospital-based physicians; and some physicians, usually in the teaching services, are hospital employees.

COMPENSATION CATEGORIES

Teaching physician compensation arrangements with hospitals and medical schools are described below. Compensation arrangements are grouped according to the extent of institutional control over physician activities and the extent of institutional control over physician income.

Institutional Control over Physician Activities

Three categories designate institutional control: full-time, part-time, and independent. These categories are not related directly to sources of physician income, nor to specific activities, nor to where the activities take place. Rather they are meant to show whether a physician is totally, partly, or not at all under the "control" of the institution, as might be shown in an organization chart. The extent to which a hospital or medical school actually exercises control over physician activities varies to such an extent that in the definitions below the more neutral term "auspices" is used.*

---

*Following the example of the American Association of Medical Colleges. Memo to all medical school deans from Dr. Robert Berson, executive director, dated June 21, 1965.

Full-time. All the physician's professional activities are under the auspices of the institution -- a hospital or medical school -- irrespective of his sources of compensation or the location of his activities. Because of the variety of compensation arrangements for full-time physicians, this category is divided into four subcategories (discussed below).

Part-time. Some of the physician's activities are under the auspices of a hospital or medical school; for those activities, the physician receives a salary or, less commonly, hourly compensation.

Independent. The physician is independent from hospital or medical school auspices. He may be in private practice, an employee of another institution or a hospital-based physician with a contractual arrangement. He receives no compensation from the institution.

Institutional Control over Physician Income

To characterize the different compensation arrangements included under the designation "full-time," a distinction is made between teaching physicians who receive full salary (strict full-time) and teaching physicians whose compensation consists of two parts, a base salary and earnings from patient care (geographic full-time).

Strict full-time (SFT) refers to physicians whose total compensation is in the form of a guaranteed annual salary, the amount of which is fixed. In some cases this salary bears no relation to the professional fees generated by the individual physician; in others the salary amount is negotiated, at least in part, on the basis of the volume of fees he generates.

Geographic full-time (GFT) refers to physicians who receive a combination of base salary and fee earnings. Three arrangements that can generally be called geographic full-time are defined below:

GFT1 includes physicians who receive a guaranteed base salary from a hospita or medical school, plus fee earnings up to a fixed total compensation or income ceiling. The portion from fees may consist of the individual physician own fees or a share of a group's fees.

GFT2 includes physicians who receive a fixed base salary, plus fee earnings, with no fixed total compensation. In some instances, the physician keeps all fee income; in others, his compensation arrangement requires an increasing proportion of fee earnings to be turned over to the medical school, hospital, or a practice plan -- a "progressive tax" arrangement.

GFT3 includes physicians who are considered full-time by the institution, but who receive no guaranteed base salary; their total compensation is from professional fees.

Part-time (PT) physicians receive a partial salary covering the relevant proportion of their time; independent (IND) physicians receive no salary.

Of the total teaching physicians in the sample hospitals, 45 percent are full-time and 55 percent are part-time or independent (Table 7). Most of the teaching physicians in independent teaching hospitals are independent; a much lower proportion of physicians at associated and principal teaching hospitals are in this category.*

The number of teaching physicians in each compensation category for four specialty groups is shown in Table 8. More teaching physicians in psychiatry are strict full-time than physicians in the other specialties.

SOURCES OF TEACHING PHYSICIAN COMPENSATION

Teaching physicians receive compensation from various institutions and fund sources. Most receive payment from some mix of institutional funds and professional fees, although those physicians classified as independent receive no institutional funds. Professional fees may be channeled through the institution or a practice plan, or they may go directly from patient payors to the physician. In the latter case, the institution usually does not know how much the physician earns from fees. Seven of the seventeen sample medical schools know the total amount of professional fees their faculty physicians generate; ten do not. Of the seven, two are private and five are public schools.

Table 9 shows the sources of teaching physician compensation for the sample medical schools that have complete data. Thirty to 40 percent of the compensation is from professional fees in the public medical schools; 42 and 75 percent, respectively, in the two private schools. Sponsored funds make up 14 to 45 percent of total compensation in the public schools; state and general funds make up 21 to 49 percent.

Teaching physicians compensated by hospitals (full-time and part-time physicians) are usually paid from hospital general revenues, consisting of revenues from patient care and ancillary services, government appropriations to public hospitals, and other sources. Most teaching physicians who are full-time hospital employees do not receive any income from professional fees, although in five of the sample hospitals their fees go into hospital general revenues, from which their salaries are paid. A few hospital-employed teaching physicians receive compensation from grants such as family practice and mental health awards.

SOURCES AND USES OF PROFESSIONAL FEE INCOME

Teaching physicians at the sample medical schools generated at least $60.7 million in professional fees in fiscal 1974. Of this amount, $53.2 million

---

*These hospital types are defined in Chapter 1, Part II.

TABLE 7. NUMBER OF TEACHING PHYSICIANS IN SAMPLE HOSPITALS AND DISTRIBUTION BY COMPENSATION CATEGORY (1975)

Hospital type a/	Number hospitals b/	Total teaching physicians	Percent of physicians						
			All	SFT	GFT1	GFT2	GFT3	PT	IND
All hospitals	81	15,082	100	31	10	3	1	10	45
Principal	26	9,061	100	35	9	4	1	14	37
Public	17	4,971	100	33	15	3	1	9	39
Private	9	4,090	100	37	3	6	1	20	33
Associated	45	4,999	100	28	12	1	1	6	52
Public	11	1,702	100	36	7	0	0	11	46
Private	34	3,297	100	24	15	2	1	3	55
Independent (Private)	10	1,022	100	5	c/	1	1	8	85

Source: Institute of Medicine field data.

Note: Since physicians may have compensation arrangements with several hospitals, some physicians may be counted more than once. See text for definitions of compensation categories.

a/Definitions of hospital types are in Part II, Chapter 1.

b/Excludes VA hospitals.

c/Less than 0.5 percent.

TABLE 8. TEACHING PHYSICIANS IN EACH COMPENSATION CATEGORY, BY SPECIALTY (percent) (1975)

Specialty a/	All	SFT1	GFT1	GFT2	GFT3	PT	IND
Medicine	100	31	9	3	b/	10	46
Surgery	100	25	9	2	2	13	48
Hospital-based	100	26	8	b/	0	10	54
Psychiatry	100	45	16	7	1	9	22

Source: Institute of Medicine field data.

Note: Figures may not add to 100 percent due to rounding.

a/See footnotes to Table 3 for definitions of specialties.

b/Less than 0.5 percent.

TABLE 9. TEACHING PHYSICIAN COMPENSATION SOURCES, MEDICAL SCHOOLS (FY 1974)

Medical school	Total dollars	Professional fees	Sponsored funds	State and general funds
Public				
A	$12,409,808	$4,958,974	$2,586,395	$4,864,439
	100%	40%	21%	39%
B	8,603,012	2,604,852	3,096,084	2,892,346
	100	30	36	34
G	15,392,916 a/	4,696,000	6,888,569	3,807,747
	100	30	45	25
N	7,010,000	2,832,000 b/	2,760,000	1,418,000
	100	40	39	21
P	8,973,830	3,297,855	1,229,975	4,446,000
	100	37	14	49
Private				
C	4,044,089	1,689,235	NA	NA
	100	42		
D	3,947,371 c/	2,975,048 c/	352,244 c/	620,079 c/
	100	75	9	16

ource: Institute of Medicine field data.

ote: Based on sample medical schools that have complete data on compensation from all sources. Compensation excludes fringe benefits.

/Faculty are allowed to retain consultation fees in unknown amounts; thus total compensation and the amount from professional fees are understated.

/Includes fees appearing in school accounts plus an estimate of fees accruing directly to faculty physicians.

/Fiscal 1975 figure, which is more representative than 1974.

A: Not available.

was generated by faculty at ten schools; this amount is known to represent al the fees generated. The remaining $7.5 million represents partial fee data from six schools. No data were available from one school.

Table 10 shows the total fees generated and, where available, the percentage those fees from Medicare and Medicaid for the ten sample schools where the to fees are known. Of the ten, three schools keep records of fee revenues by payor and two more were able to give estimates. The others have no information about the sources of fee revenues, even though they know the total fees generated.

Total fees generated range from $200,000 to $10.4 million. The total is infl enced by such factors as the size of the clinical faculty, financial status of the patient population, policies of third-party payors, institutional and legal constraints on fee billing, the efficiency of the billing and collectio apparatus, and the amount of faculty time spent in patient care.

Medicare and Medicaid fees as a proportion of the total vary considerably. On the average, Medicare represents about 15 percent of the total; Medicaid, about 12 percent.

The percentage distribution of professional fee income for seven sample scho is shown in Table 11. Most of these funds go to support clinical faculty sal aries and, in most cases, fringe benefits. In general, house officers are not paid from these funds, although some schools use them to pay a few fellows or additional residents over the number the hospital will support. Other expenditures include support staff salaries and fringe benefits, supplies, equipment, and travel expenses for faculty or house officers. Often these ex penditures support the clinical department's patient care program, paying for such expenses as rental costs of clinical space; clerical and administrative staff to handle patient scheduling, billing and collection, and accounting; malpractice insurance; and equipment for patient care. The dean may use some of the funds to help support basic science departments.

In a few cases, professional fees accrue to a hospital or a hospital practice plan. This is most common at hospitals where some or all physicians receive a salary. Data are available for six such hospitals in the sample. In three the fees go to practice plans which support research, travel, professional society dues, or other expenditures; the total fees for these hospitals is $741,200. In the other three cases, fees totalling $9.3 million go directly to the hospitals. The Medicare and Medicaid portions are unknown.

PROFESSIONAL FEES AS A SOURCE OF INSTITUTIONAL SUPPORT

Medical schools derive considerable financial support from professional fees generated by faculty physicians. In some schools fees are explicitly part of

TABLE 10. MEDICARE AND MEDICAID PROPORTION OF PROFESSIONAL FEES GENERATED BY MEDICAL SCHOOL FACULTY PHYSICIANS (FY 1974)

Medical school type	Total professional fees generated a/ ($millions)	Medicare fees generated (percent)	Medicaid fees generated (percent)	Total Medicare and Medicaid fees generated (percent)
Public				
A	8.2	12	12	24
B	4.0	20	12	32
G	5.3	NA	NA	NA
N	5.6	10 b/	5 b/	15
P	5.8	14 b/	14 b/	28
Q	.2	NA	NA	NA
Private				
C	4.2	14	11	25
	1.5 c/	NA	NA	NA
D	2.8 d/	NA	NA	12 e/
E	5.1	NA	NA	NA
J	10.4	NA	NA	NA

Source: Institute of Medicine field data.

a/Figures include all fees generated by faculty physicians, whether those fees accrued directly to the physicians, to the medical school, to a hospital, or to some combination of the three. Only the ten sample schools for which data are complete are included.

b/Estimated.

c/This amount was generated by hospital-based departments; the Medicare and Medicaid portions are not known.

d/FY 1975; this is a more representative figure than the one for FY 1974.

e/This percentage is a low estimate.

NA: Not available.

TABLE 11. EXPENDITURES FROM PROFESSIONAL FEE REVENUES, SAMPLE MEDICAL SCHOOLS (percent) (FY 1974)

Medical school type	Total	Billing and administration	Clinical faculty compensation	Faculty fringe benefits	House officer salaries	Other expenditures
Public						
A	100	10	75	3	3	9
B	100	6	69	10	0	15
N	100	2 a/	55		3	40
P	100		56	0	3	41
Q	100	5	0	22	0	73
Private						
C	100	8	51		0	41
D	100		53	7	0	40

Source: Institute of Medicine field data.

Note: Blanks show that these expenditures are made from fee revenues, but the amount is unknown and is included with "Other." Zeroes mean that no expenditures are made.

a/Central billing costs only; many physicians do their own billing and some departments bill. These expenses cannot be identified.

the budgeting and accounting process, in which they are treated much like any other revenue source. In other schools fees are billed and collected outside the school's auspices, but are still an implicit revenue source in that institutional monies are not required to make up the entire amount of physician compensation. The following discussion includes only fees that enter the medical school's accounting system through a practice plan. No attempt was made to estimate the implicit revenue from fees.

Table 12 shows the range and median percent of revenues from fees and other sources for the public and private allopathic medical schools in the sample. Fees make up eight percent of public school revenues and ten percent of private school revenues, on the average, but the range is wide. In the four public schools that account for all fees, they constitute 12 to 30 percent of all revenues. Only two of the private schools in the sample know total fees. In one, fees make up 44 percent of revenues; in the other, ten percent.

TABLE 12. SOURCES OF MEDICAL SCHOOL REVENUE (percent) (FY 1974)

Revenue type	Public schools		Private schools	
	Range	Median	Range	Median
Professional fees	0-30	8	2-44	10
Sponsored research	17-39	27	9-44	35
Other sponsored funds	15-29	18	12-33	25
State appropriations	15-49	27	0-11	2
Other general funds	6-21	11	16-43	25

Source: Institute of Medicine field data.

Note: This table is based on eight public and seven private allopathic medical schools in the sample. The two sample osteopathic medical schools, which have very different revenue patterns, are discussed in the text.

Sponsored research and other sponsored funds form a greater proportion of revenues to private schools than to public schools. State appropriations are a greater source of support to the public schools, although five of the private schools receive some state support.

The two osteopathic medical schools have revenue patterns very different from the other medical schools but very similar to each other, even though one is public and one is private. Both derive little or no direct revenue from professional fees since physicians bill independently. The private school derives half, and the public school three-fourths of total income from state appropriations. Each receives about one-fourth of its support from sponsored funds, mainly non-research funds.

Even those schools in which professional fees provide direct financial support, they usually are generated by the full-time faculty. However, the ability to generate income from patient care makes it possible for most part-time and volunteer faculty to teach. The medical school pays these physicians little or nothing, yet they provide teaching services and a flow of patients, and revenues, into the teaching hospitals.

PRACTICE PLANS

There are several methods for collecting and distributing professional fees generated by practicing physicians. The physician in individual private practice controls the entire process; he establishes his charge, bills the patient, receives the payment, puts the money in an account, and writes checks on the account. Physicians in group practices commonly use centralized billing systems. If the physicians are in the same specialty, they may have a single charge schedule applicable to all physicians in the group. In group practices, the recipient of payment may be the individual physician, who then pays his share of the group's operating costs, or it may be the group as a whole, in which case the operating costs usually are paid from group funds and the remaining balance divided among the physicians according to a formula. Each physician then has full control over the use of his share just as he does over any other income.

In many teaching hospitals and academic health centers, the fee collection and distribution process takes place within the context of practice plans. Although these plans have much in common with group practices, there is a major difference: the participating physicians do not retain control over disbursements from the fees they have generated. Instead, this control is shared, usually with the central administration of the medical school or hospital where the plan is based, and often with the clinical department head or service chief as well. Practice plans define how professional fees will be distributed to the fee-earning physicians as income and to the institution. They also define the division of the institution's share between the central administration (dean or hospital administration) and the clinical chiefs. Table 13 shows the number of medical schools and hospitals in the sample and pretest that have operating practice plans. The pretest medical schools and hospitals are included to allow a fuller discussion of these idiosyncratic organizations.

TABLE 13. SAMPLE INSTITUTIONS WITH PRACTICE PLANS (1975)

	Total	Public	Private
Medical schools a/	20	11	9
With plans	15	9	6
Without plans	5	2	3
Hospitals b/	89	31	58
With plans c/	10	6	4
Without plans	79	25	54

Source: Institute of Medicine field data.

a/Includes two public and one private pretest schools.

b/Excludes VA hospitals; includes eight pretest hospitals.

c/Excludes 17 hospitals covered in all or in part by medical school practice plans and five hospitals in which all professional fees go to the hospital.

Medical School Plans

Fifteen of the 20 medical schools have some form of practice plan now in operation. Of the remaining five schools, one has several pilot plans in operation before schoolwide implementation; another is studying the feasibility of a medical school sponsored practice plan; another has an income limitation policy. In general, it appears that medical schools are establishing practice plans to increase their control over faculty activities and earnings, as well as to obtain better information about the financial resources available to support the school. Schools that have plans are revising them in ways that increase institutional control over professional fee revenues.

Practice plans have different membership requirements, billing and collection procedures, and distribution formulas. However, the plans studied generally belong to one of three basic types reflective of the attitude at each medical school toward professional fees. Six of the 17 medical school plans reflect the attitude that professional fees "belong" to the individual physician; seven plans, that fees "belong" to the clinical department; and one plan, that they "belong" to the school.

There are ten plans in operation at nine public medical schools and seven plans in operation at six private medical schools (Table 14). Although

TABLE 14. CHARACTERISTICS OF MEDICAL SCHOOL PRACTICE PLANS (1975)

	Public school plans	Private school plans
Total plans	10	7
Membership		
Full-time faculty	10	7
Other faculty	2	3
Revenues		
All patient care revenues	10	7
Honorariums and royalties	1	1
Exceptions	2	0
Billing		
Central office	5	3
Department	1	3
Mix	4	1
Distribution		
Physician	10	7
Department chairman	8	7
Dean	8	5

Source: Institute of Medicine field data.

there are some departmental exceptions, plan membership is mandatory for all full-time clinical faculty. Some plans distinguish between geographic full-time and strict full-time faculty. At one public school, for example, membership in the plan is mandatory for geographic full-time faculty, with fees from strict full-time faculty going directly to their departments, since these strict full-time physicians are not expected to generate much income from patient care. At another public school, the department chairmen decide who can participate in the plan; the only criterion is "faculty who can generate income." Participation in the plan is voluntary for strict full-time faculty at one school.

Membership in the plan is mandatory for all full-time faculty at the private schools with practice plans. At one school, membership is optional for geographic full-time faculty; at another, part-time faculty must channel through the plan all fees from staff patients and from private patients referred by full-time faculty.

In general, all patient care and consultation fees for services rendered by physicians who are included in the plan must go through the plan apparatus. Two plans also require that honorariums and royalties to into the plan fund.

The billing and collection processes used vary. Eight plans use a central billing office for all physicians. Individual departments handle billing and collection for four plans, and five plans had a mix of departmental, individual, and hospital billing.

The distribution of plan revenues is a function of the individual plan, although certain generalities may be made. The first claim on revenues is the cost of plan operations, which may include a plan administrator's salary and billing and collection expenses. Certain costs of practice and central university charges also receive top priority. All medical school plans provide some income to the participating physicians, although there are different formulas for determining the actual amount paid to individuals. The medical school dean and chairman of participating clinical departments usually receive a portion of the plan revenues, which they use as general funds. In some schools the revenues go into restricted accounts for such uses as educational development or research.

In two private school plans and two public school plans, the dean does not receive any income from the plan. In two public school plans, the department chairmen do not receive any discretionary funds from the plan revenues.

Physicians may receive income from the plan either in proportion to the amount they have contributed or in the form of a negotiated supplement. In seven of the 17 medical school plans, a limit is set for each physician on compensation to be derived from practice earnings, either through negotiation or according to institutional standards for faculty rank. In these cases, distribution of plan revenues to the dean, department chairmen, or special purpose accounts is made only when the physician has generated practice earnings over the limit. In three of these cases, the physician continues to receive a portion of the excess income that he generates. In another public school plan, there is no predetermined ceiling on compensation, but each physician must pay a progressive proportion of his private practice earnings. Proceeds are then divided between the dean and the department.

At one private school, combinations of all the plans discussed above are in operation. At one public school, the only disbursements from plan revenues are small allowances to each participating physician; the rest of the funds remain unspent in anticipation of a change in plan arrangement.

The practice plan money directed to the medical school usually pays for expenses such as central university expenses attributable to the medical school, general medical school programs, and, in some cases, malpractice insurance and a share of the physicians' costs of practice. At one site, the basic science departments contribute income from consultations to the practice plan and in return receive 15 percent of the fund's revenues.

If the department chairman receives a portion of plan revenues, he may supplement the salaries of members of his university department who do not contribute to the plan, such as physicians at VA hospitals. Part of the money under the control of the department chairman may also go into a research and education fund to pay for physician and house officer travel expenses to conferences and for additional equipment. In some cases, house officer salaries are supplemented. To cover unexpected expenses, the department chairman usually directs some portion of practice earnings into a reserve fund.

Hospital Practice Plans

Table 15 shows the characteristics of practice plans which are organized on a hospital basis. Of the 89 non-federal hospitals (sample and pretest), seven of the 31 public hospitals and four of the 58 private hospitals have specific arrangements for the professional fees generated by physicians on their staffs. Excluded from discussion here are five hospitals where all professional fees revert directly to the hospital.

Hospital practice plans have different membership requirements and distribution formulas. Three public hospitals have established plans for faculty physicians on their staff because their medical school affiliates prohibit faculty physicians from receiving professional income except through the medical school. Of the other plans, seven are for full-time hospital staff physicians; two public hospitals include some part-time physicians. At one private hospital, participation in the plan is voluntary.

TABLE 15. CHARACTERISTICS OF HOSPITAL PRACTICE PLANS (1975)

	Public hospital plans	Private hospital plans
Total plans	7	4
Membership		
Voluntary	0	1
Faculty physicians	3	0
Full-time physicians	4	3
Other physicians	3	0
Revenues		
All patient care	6	0
Selected sources	1	4
Billing		
Central office	2	0
Hospital	5	3
Mix	0	1
Distribution		
Hospital	3	0
Department	2	2
Research/education/development	5	4
Individual	2	0

Source: Institute of Medicine field data.

All revenues from patient care at the seven public institutions are channelled through the plan, but fees from staff and private patients are treated differently at one institution. The plans at the four private hospitals are for particular revenue sources only; one of the plans is for private practice income outside the regular work week, and the others are for professional fees from clinic and staff patients seen in the hospital.

Billing and collection is handled by a separate practice plan office for two of the public hospital plans; the hospitals bill for eight plans. At one private hospital, the physician, department, or hospital is responsible for billing, depending on the department arrangement.

The distribution of funds from these plans varies from institution to institution. Of the three plans organized for fees generated by physicians with faculty appointments, one divides the revenues between the hospital general operating fund and the department which generated them. Another divides the money between the department and an independent research organization of which the faculty are members. Part of the money is also channelled through the dean of the affiliated medical school but is earmarked fo development of programs based at the hospital. All revenues from the third faculty plan go to a research foundation which is financially and functionally independent from either the hospital or medical school. At one public hospital, money goes to an education fund for the maintenance of a library. At two other public institutions, the physicians receive a portion of the fees they have generated. One has an arrangement by which fees earned during the regular work week revert to the hospital, but the physicians keep the income from private patients seen after the hospital commitment has been fulfilled. The other plan supplements physician salaries according to an agreement between the hospital and the medical school, with any remaining balance to be used for institutional development. This plan will be administered by the medical school in the near future. The professional fees of the remaining public hospital accrue to a special county account. Part of the fees are allocated to a research organization, with the rest applied to the hospital operating deficit.

Private hospital practice plans channel fees from clinic and staff patients into individual or departmental education funds. These funds are expended for travel to conferences, equipment, medical journals, support staff, and malpractice insurance. Sometimes they pay for travel and journals for house officers.

There are several major distinctions, then, between hospital practice plans and medical school plans. The main purpose of hospital plans is not to pay physician salaries, but rather to add to research and education funds, and to a lesser extent, hospital general funds. Practice plans based at private hospitals tend to be smaller than those at public hospitals since there are fewer full-time physicians.

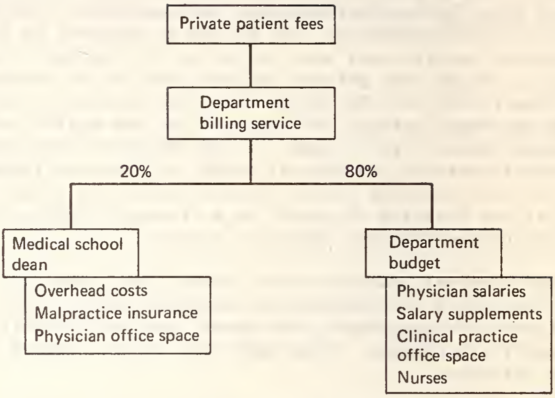
Practice Plan Fund Flows

Tables 14 and 15 do not fully reflect the differences in revenue generation and distribution which distinguish individual plans. Although some plans are very simple, others have complex mechanisms for fee collection and distribution.

Figure 1 shows the division of professional fees generated by a medical school practice plan which is organized on a departmental basis. This school is distinguished by a history of strong, independent department chairmen responsible for the development and maintenance of a departmental budget. The university does not have its own hospital, but the medical school department chairmen are the chiefs of service at two private hospitals which are both principal teaching affiliates of the medical school. Faculty members are on a strict full-time compensation arrangement and may keep honorariums and royalties only.

The departments bill and collect all professional fees from private patients at these two hospitals. The department turns 20 percent of its collections

FIGURE 1
FACULTY PRACTICE PLAN
PRIVATE MEDICAL SCHOOL


Private patient fees
Department billing service
20%
80%
Medical school dean
Overhead costs
Malpractice insurance
Physician office space
Department budget
Physician salaries
Salary supplements
Clinical practice office space
Nurses

Plan membership includes full-time medical school faculty in all clinical departments except three.

over to the dean of the medical school who applies this money to central university charges, malpractice insurance, and some office space for physicians. The 80 percent retained by the department is used to supplement salaries of faculty members employed at a municipal hospital where the salary scale is relatively low. Plan revenues are also used for clinical offices, some nurses and administrative staff, and for general house officer support. Any fees generated above those projected in the departmental budget are put into the department chairman's reserve fund for use at his discretion. Such uses include faculty salary supplements, pilot research, and additional house officers and graduate medical education programs.

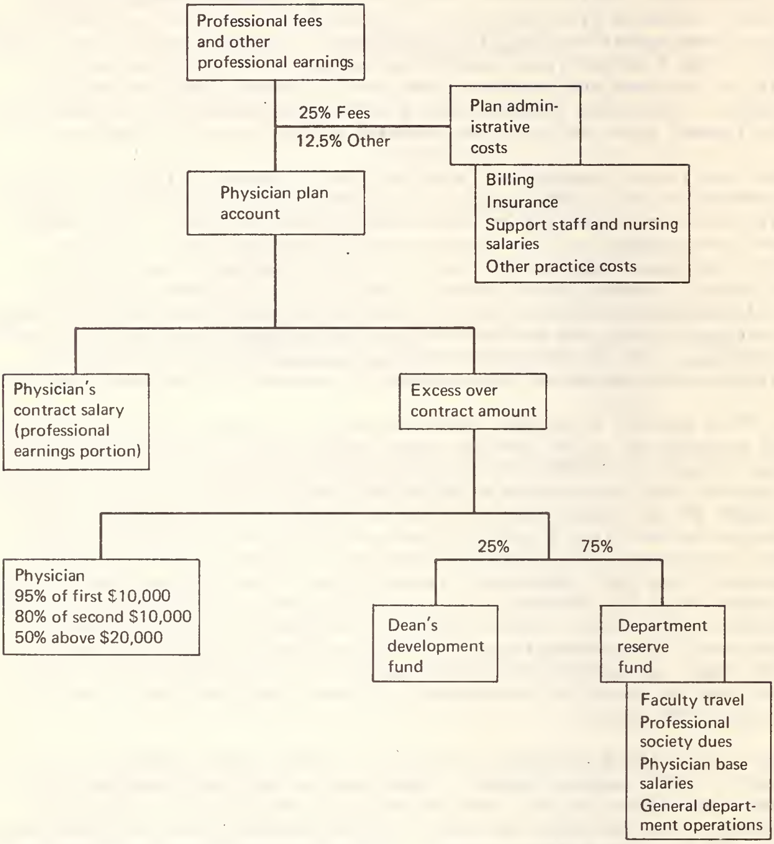
A more complicated, centralized practice plan is shown in Figure 2. This plan covers all full-time faculty. Since there is no university hospital, faculty physicians practice at several affiliated hospitals. All income derived from professional activities must go into the plan, including practice earnings, honorariums, and royalties. The physician is paid a total salary from the medical school. This salary is determined by the clinical department chairman who decides the mix of funding sources (grants, institutional money, and professional earnings) appropriate for the individual physician. The professional earnings component for each physician is influenced by the amount of revenues he generated in the preceding year.

Twenty-five percent of patient care fees and 12.5 percent of other professional earnings go to the medical school which uses it to cover the costs of billing, insurance, staff and nursing support, and other costs of practice. Any earnings over a physician's projected contribution to his total salary are taxed, but are then distributed as an incentive. The physician gets 95 percent of the first $10,000, 80 percent of the next $10,000, and 50 percent after that. The remaining portion is divided between the dean's development fund and a department reserve fund. Expenditures from the dean's fund are made at his discretion for new or operating school programs. The department reserve fund, administered by the department chairman and two elected faculty representatives, is used for faculty travel, professional society dues, and general department support. The reserve fund is also used to make up deficits in salaries for those physicians who do not earn their projected amount.

Figure 3 shows the flow of plan funds at a county teaching hospital affiliated with a public medical school. This plan is different from the two medical school plans in that none of the plan revenues go to individual physicians. The physicians receive a full-time salary from the county and supplements from the medical school. All professional fees generated by plan members go to the plan.

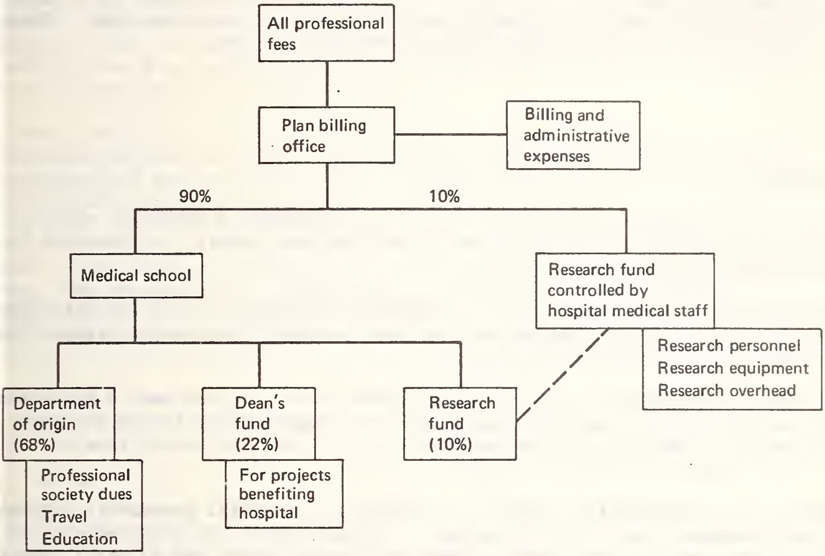
All billing is done by a centralized service. After the billing and administrative expenses are paid, 90 percent of the revenues go to the medical school and ten percent go to a hospital research fund. Of the medical school's 90 percent, 68 percent is returned to the hospital department that generated the funds, 22 percent stays in the dean's discretionary fund with

FIGURE 2
FACULTY PRACTICE PLAN
PRIVATE MEDICAL SCHOOL


Professional fees and other professional earnings
25% Fees
12.5% Other
Plan administrative costs
Billing
Insurance
Support staff and nursing salaries
Other practice costs
Physician plan account
Physician's contract salary (professional earnings portion)
Excess over contract amount
Physician
95% of first $10,000
80% of second $10,000
50% above $20,000
25%
75%
Dean's development fund
Department reserve fund
Faculty travel
Professional society dues
Physician base salaries
General department operations

Plan membership includes all full-time clinical faculty physicians.

FIGURE 3
HOSPITAL PRACTICE PLAN
PUBLIC ASSOCIATED HOSPITAL


All professional fees
Plan billing office
Billing and administrative expenses
90%
10%
Medical school
Research fund controlled by hospital medical staff
Research personnel
Research equipment
Research overhead
Department of origin (68%)
Dean's fund (22%)
Research fund (10%)
Professional society dues
Travel
Education
For projects benefiting hospital

Plan membership includes all full-time staff physicians.

the understanding that this money is to be used for development of programs at the hospital, and ten percent goes to the hospital research fund. Figure 3 shows the types of expenditures from the various funds.

* * *

FINDINGS

Not all physicians in teaching hospitals are teaching physicians; the proportion of teaching physicians is greater the more closely the hospital is associated with a medical school.

Teaching physicians spend about 20 percent of their time in joint activities which result in education and patient care; most of this time is spent with interns, residents, and fellows.

Teaching physician compensation arrangements vary. In the sample hospitals, 44 percent of teaching physicians receive no compensation from a hospital or medical school; 56 percent receive a full or partial salary from a medical school, hospital, or both.

Control over professional fees is specified in financial agreements between teaching physicians and institutions. In some cases, the institution controls fee revenues; in others, physicians control them; and in still others control is shared by the institutions and physicians in elaborate arrangements called practice plans.

Most teaching physicians receive their income from a combination of professional earnings and institutional funds. When the physician controls his own fees, an institution with which he is associated usually does not know his total income, but only the portion, if any, paid from institutiona funds.

Physicians employed by public medical schools receive 30 to 40 percent of their income from professional fees. The fee percentage is probably higher in private schools.

Physicians employed by hospitals usually are paid from hospital general revenues and receive no income from fees; five sample hospitals are exceptions in that fees generated by employed physicians flow into hospital general revenues, from which the physician salaries are paid. Thus, they receive income from fees indirectly.

Most institutions and practice plans do not know the payor sources of fee revenues; for the few that record this information, Medicare and Medicaid account for about 30 percent.

Faculty physicians in the 17 sample medical schools generated at least $60.7 million in fees in fiscal 1974. Over half the fees were used to support the physicians who generated them; the rest supported general institutional expenses such as travel, support staff, and equipment.

Professional fees provide a substantial source of support for most medical schools. In some, support is direct since funds flow through institutional accounts. Even if fees go directly to physicians, indirectly they support institutional programs if those physicians teach and care for patients at little or no cost to the institution.

In about one-third of the sample teaching hospitals, physician fees are controlled by practice plans, which determine how fees are divided between the physicians and the institution. Many plans also specify how the institutional portion is to be used.

Some plans are organized on a medical school basis; others are hospital plans. Plan members are physicians who receive a salary from the institution. The medical school plans provide additional income to the physicians; hospital plans channel fees into research and education funds controlled by the institution or department.

Chapter 3

ORGANIZATION OF PATIENT CARE

A major purpose of the Medicare legislation enacted in 1965 was to assure elderly people financial access to medical care services available to the majority of the population. Today, most Medicare beneficiaries do have access to these services.

However, there is congressional concern that payments are being made for a level of service that some beneficiaries do not receive. In its 1970 report, 1/ the staff of the Senate Finance Committee noted that although Medicare was paying "supervisory physicians" under Part B for patient care services, it appeared that many program beneficiaries who had come to teaching institutions were cared for by interns and residents. There is also concern expressed by the academic medical community that in an attempt to alleviate this problem through enactment of Section 227, differences in the level of care received by beneficiaries might be exacerbated by a payment method which encourages maintenance of "private" and "non-private" settings within a hospital. 2/

The study group focused analysis of the organization of patient care services on examination of non-medical criteria used for classifying patients as private or non-private and whether house officer involvement in patient care is related to patient classification. No relationship has been established between the quality of medical care delivered in teaching hospitals and whether teaching physicians or house officers deliver the care. Examination of the clinical issues associated with quality of care was determined to be beyond the scope of the congressional charge for this study.

In response to the financial stimulus and resources of Medicare and Medicaid and changes in medical education and social attitudes, the organization of patient care in teaching hospitals has changed since 1966. Medical education programs have expanded, the team approach to patient care has been widely introduced, and use of the ward system has declined. There is a trend toward a one-class system of patient care within many institutions. However, hospitals are complex organizations, and changes in the systems of delivering patient care are evolving slowly. This chapter describes the organization of patient care in the sample hospitals as it existed in the spring of 1975.

PATIENT CLASSIFICATION

Classification of patients as private or non-private usually is based on two non-medical criteria: patient-physician relationship and ability to pay.

Patient-Physician Relationship

The relationship between a patient and his physician may be established in several ways. If the patient sees his private physician in the physician's office, and the physician arranges the patient's admission to the hospital, this prior relationship establishes the patient as "private." At the other extreme is the patient who presents himself at the hospital's outpatient department and is admitted to an inpatient "staff" service. This "non-private" patient receives care from house officers, although an attending physician has legal responsibility for his treatment. Many situations are not as clearly defined as these extremes. For example, if a patient is assigned or chooses an attending physician during admission, his ability to pay may become the criterion for classifying him.

Ability to Pay

The ability of the patient to pay hospital charges he is expected to incur is determined in almost all hospitals by some form of financial screening during admission. Typically, the hospital requests information from the patient about his insurance and the extent of coverage. This information may lead the hospital to request a deposit, to establish an installment payment plan, or to aid the patient in completing necessary application forms for medical assistance programs.

Hospitals generally do not request specific information about a patient's ability to pay for professional services because hospitals rarely serve as the billing agent for the physician who provides services in the inpatie setting. Hospital-based physicians such as radiologists, anesthesiologists pathologists, and physiatrists are exceptions to this general rule. In the 81 non-federal sample hospitals,* only five billed for all professional services provided by staff physicians, as well as for institutional service Usually, physicians bill on their own behalf or belong to groups or practic plans which bill for them. Although it might be expected that hospitals which bill for professional services would screen patients for ability to pay physician charges, no evidence was found to support this supposition, even in the five institutions which bill for them.

The relative roles of the teaching physician and house officer in rendering patient care generally are determined by the classification of the patient as either private or non-private. A patient may be classified as private because of his ability to pay for hospital services and yet be unable to pay for professional services. In such a case, the physician is unable to collect his fee for professional services even if he has rendered "private" care. There is often a correlation between ability to pay for hospital charges and ability to pay for professional charges. For example, if a patient qualifies for Medicaid, the program will cover physician charges, as limited or set by the program, as well as hospital charges.

---

*VA hospitals are excluded from this discussion since the VA usually does not bill third parties.

HOSPITAL PATIENT CARE TYPES

At each sample hospital, application of these non-medical criteria was examined to determine how the establishment of the relationship between patient and physician and the results of financial screening relate to patient classification. Forms, procedures, and manuals were examined and personnel were interviewed at each entry point into the inpatient facility, including the outpatient department, the emergency room, and the inpatient admitting office, to determine how patients are classified. Patient identification systems were examined to determine if they conveyed information about patient classification. Although all hospitals use patient identification systems for essential personal and medical information, some systems include information about the patient's ability to pay for hospital services. Identification systems may signify, too, that the patient, although assigned to an attending physician, is primarily the responsibility of house staff.

Information about patient classification may be shown by color (on patient identification bands or room identifiers, for example), letter, number, or word codes. In some hospitals, two physicians' names appear on a patient's record: the name of the house officer who is to assume primary responsibility for the patient follows the name of the assigned attending physician. Even more informal identification systems exist in other hospitals. In one hospital, because "Dr. Brown" is assigned all patients unable to pay, his name on a chart identifies the patient as non-private. Although these distinctions are not obvious to the uninformed observer, they signify non-private status to hospital personnel.

Data collected from visits to the hospitals and interviews with chiefs of service and house officers permit the study group to describe the actual classification of patients in sample hospitals whether or not it agrees with the official institution position. For example, one hospital administrator stated that all patients in his institution were "private" patients. Interviews with the emergency room administrator and chiefs of service, however, showed that patients who came to the emergency room were assigned an attending physician but were cared for by a resident if they are unable to pay for hospital services or if they are Medicaid patients. This group of patients was considered non-private by hospital personnel and was classified as such by the study group.

Hospitals were grouped according to how their patients are classified: Type I includes all sample hospitals with over 95 percent private patients; Type II hospitals have non-private patients only; and Type III hospitals have both private and non-private patients.

Type I Hospitals

Of 81 hospitals in the sample, 23 had over 95 percent private patients. At these institutions, patients generally are admitted by their private physician to the inpatient facility where the attending physician has primary responsibility for their care. Although the hospital screens for ability to pay, usually this is not a classification criterion because the patient's ability to pay has, in effect, been determined before admission to the institution. Sixty percent of Type I hospitals in the sample are in suburba areas or small cities. People from these areas typically go to specific physicians rather than to institutions for medical care. The physician, rather than the patient, then determines where the patient will receive any necessary hospital care.

Type II Hospitals

Twenty hospitals in the sample had non-private patients only. Patients in Type II hospitals generally go to a hospital rather than to a specific physician for medical care. Sixty-five percent of Type II hospitals in the sample are in inner city areas where few private physicians practice and the community relies on the institution for medical care. For the most part, Type II institutions were established to serve indigent populations. Althoug patients are screened for ability to pay and those who can pay are billed, ability to pay does not affect patient classification. All patients are considered non-private, including those few who had a pre-existing relationship with an attending physician.

Type III Hospitals

The remaining 38 hospitals in the sample had both private and non-private patients. The majority of the Type III hospitals in the sample, like the Type II hospitals, are located in inner city areas, but Type III hospitals tend to draw on much larger geographic areas, sometimes a state or large region, for their patients. These institutions offer the entire spectrum of patient care services from outpatient care for local populations to highl specialized tertiary care.

In all Type III hospitals, patients who had a previous relationship with an attending physician were private except in a few cases in which the patient chose to be non-private. If the patient had to be assigned an attending physician during admission to the hospital, ability to pay became the prima criterion for classification in all except three Type III hospitals.

In these three hospitals, all patients without a previous relationship with a physician were classified as non-private regardless of their ability to pay.

In the other 35 Type III hospitals, those patients able to pay were assigned a private attending physician and were considered private patients. Those unable to pay were assigned to a staff service or to an attending physician who supervised house staff who provided care. These patients were considered non-private. Each hospital established its own definition of ability to pay; in seven hospitals where patients were assigned to physician groups, the individual service defined ability to pay.

Ownership and Education Association*

All hospitals with private patients only (Type I) were privately owned (voluntary nonprofit or proprietary); 95 percent of the hospitals with non-private patients only (Type II) were government-owned; one was private. Fifty-five percent of all privately owned hospitals and 32 percent of all government-owned hospitals in the sample had both private and non-private patients (Type III). All osteopathic hospitals were Type I with the exception of one Type III hospital. In the sample, 46 percent of all

TABLE 1. DISTRIBUTION OF HOSPITALS BY PATIENT CARE TYPE, OWNERSHIP, AND EDUCATION ASSOCIATION (1975)

Hospital classification	Total	TYPE I Private patients	TYPE II Non-private patients	TYPE III Private & non-private patients
Total	81	23	20	38
State principal	13	0	6	7
Local principal	4	0	4	0
Local graduate associated	11	0	9	2
Private principal	9	4	0	5
Private graduate associated	24	8	0	16
Private undergraduate associated	10	8	0	2
Private independent	10	3	1	6

Source: Institute of Medicine field data.

---

*See Chapter 1, Part II for discussion and definition of hospital ownership and education association categories.

principal hospitals, 44 percent of all graduate and undergraduate associated hospitals, and 67 percent of all university-owned hospitals were Type III hospitals. Type III hospitals were most common (47 percent of all sample hospitals) in all ownership and education association categories, except for all local government-owned hospitals which were Type II.

Patient care type was more closely tied to ownership than association with a medical school. If Type III hospitals were excluded, privately owned hospitals tended to have private patients only, and publicly owned hospitals tended to have non-private patients only.

Medicare and Medicaid Patients

Medicare inpatient days represented 31 percent of all inpatient days in both Type I and Type III hospitals but accounted for 19 percent of total inpatient days in Type II hospitals. However, in Type II hospitals, 25 percent of all inpatient days were Medicaid days. Eight percent and 14 percent of total inpatient days were reported as Medicaid days by Type I and Type III hospitals, respectively.

There was no pattern to the classification of Medicare and Medicaid beneficiaries in Type III hospitals. Most hospital personnel stated that Medicare and Medicaid patients were classified the same way as other patients. A Medicare or Medicaid patient who had a previous relationship with a physician was almost always private.

Source of payment as a determinant of ability to pay was used by some hospitals as the primary criterion if the patient did not have a previous relationship with a physician. In two hospitals, Medicare patients always were classified as non-private patients; in one of these, this was because the attending physicians refused to accept assignment. In five other hospitals Medicare/Medicaid* beneficiaries and Medicare beneficiaries unable to pay deductibles and coinsurance were classified as non-private. One hospital, however, indicated that Medicare/Medicaid patients always were classified as private. In general, Medicare beneficiaries able to pay deductibles and coinsurance were classified as private.

Medicaid patients were classified as non-private in seven hospitals when ability to pay was considered. In two hospitals, classification of Medicai patients varied from service to service. In other hospitals, some services were exceptions in that they classified Medicaid patients as private when the institution viewed them as non-private; the converse was also true.

Beds and Settings

Eighteen percent of all beds in the 81 non-federal hospitals in the sample were in Type I hospitals, 31 percent in Type II hospitals, and 51 percent in Type III hospitals. Of the 38 Type III hospitals, 18 mixed private and non-private patients throughout the institution according to the kind of medical care required. The remaining 20 Type III hospitals had some distinct physical settings for private and non-private patients and routinely assigned patients to them according to patient classification. Private patients could be assigned to a "private wing," floor, or building, and non-private patients could be assigned to a "house officer floor," ward, or separate building. Of total beds in Type III hospitals, 72 percent were in mixed settings, 16 percent were in private settings, and 12 percent were in non-private settings.

---

*Patients eligible for both the Medicare and Medicaid programs.

Even in the 20 Type III hospitals with identifiable geographic settings, 62 percent of all beds were in mixed settings. Only six of these hospitals had less than half of their beds in mixed settings. Four of the 20 hospitals did not have private settings, and three did not have non-private settings. Beds in private settings accounted for 21 percent, and beds in non-private settings accounted for 17 percent of all beds in hospitals with identifiable settings.

PATIENT CARE IN TEACHING HOSPITALS

In some teaching hospitals, all or most patient care services participated in or conducted graduate medical education programs. In other hospitals, only one or a few services had teaching programs, and house officers had little exposure to patients on the services with no teaching program. Type I hospitals had fewer teaching programs than Type II or Type III hospitals. The median number of teaching programs was five in Type I hospitals, eight in Type II hospitals, and twelve in Type III hospitals. Type III hospitals tended to have teaching programs in all hospital services.

This section describes the role of house officers in patient care delivered to private and non-private patients on teaching services in the three hospital patient care types. Because house officers have different responsibilities in outpatient departments and emergency rooms than they do on inpatient services, these are discussed separately.

In each patient care area, hospital personnel, including training program directors, chiefs of service, house officers, and nurses, were interviewed to determine the extent of involvement of house officers in specified patient care activities. Administrative and medical personnel were interviewed in outpatient departments and emergency rooms. An activity survey of house officers, based on time logs, was also conducted at each institution in the sample to determine the extent to which house officers are supervised. Activity data presented in this chapter are based on aggregate hours reported in patient care settings.

Inpatient Services

House officer responsibilities for three types of patient care activities - treatment, surgery, and discharge - were compared. Data from interviews indicate that house officers usually initiated patient treatment in all Type II hospitals (non-private patients only), but did so in about ten percent of the Type I hospitals (private patients only). Similarly, house officers usually initiated treatment for non-private patients but seldom did so for private patients in Type III hospitals. House officers gave orders for routine treatment, regardless of hospital type, although they did so less often in Type I hospitals and for private patients in Type III hospitals. Routine daily management of patients within an approved treatmen plan was considered to be a proper house officer activity in all hospitals in the sample.

House officers generally assisted in surgery, no matter whether the patient was considered private or non-private. A house officer usually was the primary surgeon in about three-fourths of Type II hospitals and about one-third of Type I hospitals.

House officers usually wrote the discharge summary for patients in all sample hospitals. Many training program directors and chiefs of service considered writing the discharge summary an important aspect of the house officer's training. Signing the discharge summary, on the other hand, was rarely the house officer's responsibility in Type I hospitals. The reverse situation was found in Type II hospitals where house officers signed discharge slips in about three-fourths of the hospitals.

For most activities, house officers for private patients in Type III hospitals were involved to about the same extent as house officers in Type I hospitals. However, for two activities - performing surgery and writing the discharge summary - house officers for private patients in Type III hospital were less involved than they were in Type I hospitals. This difference may be partially explained by the fact that most Type I hospitals have house officers on a few services only. In Type III hospitals, house officers tended to be associated with services throughout the hospital. However, on private patient floors or services, house officer participation was sometime minimal.

House officer activities for non-private patients in Type III hospitals were similar to house officer activities in Type II hospitals except that house officers signed the discharge slip more often in Type II hospitals.

Supervision of House Officers. The level of supervision house officers received while involved in patient care activities varied (Table 2). House officer activity data showed that an attending physician was present, directly supervising house officers, during a greater percentage of patient care time in Type I hospitals and in mixed settings in Type III hospitals than in Type II hospitals or in private or non-private settings in Type III hospitals. House officers in Type II hospitals spent slightly more patient care time with an attending physician present than did house officers in non-private settings in Type III hospitals. Data show that house officers in private settings in Type III hospitals did not receive as much supervision as house officers in Type I hospitals. Because only four percent of total patient care hours were reported by house officers in private settings in Type III hospitals, firm conclusions should not be drawn.

The highest percentage of house officer patient care time in all hospital types was spent in independent activity with expectation of review by an attending physician or a more senior house officer. Relatively little patient care time was spent in independent activity with no expectation of review.

TABLE 2. SUPERVISION OF HOUSE OFFICERS (percent time spent in patient care)

Supervision	Type I	Type III			Type II
	Private patients	Private and non-private patients			Non-private patients
		Private settings	Mixed settings	Non-private settings	
Total	100	100	100	100	100
Attending physician present	32	15	32	19	23
Senior house officer present	11	13	11	14	17
Independent, review expected	45	51	44	51	47
Independent, no review expected	8	17	9	12	10
Data unavailable	4	4	4	4	3

Source: Institute of Medicine House Officer Activity Analysis.

Supervision by Year of Training. Patient care responsibilities and level of supervision change with the year of graduate training (Table 3). In each hospital type, the percent of patient care time with an attending physician present increased with year of training. This reflects both the close working relationship between senior house officers and attending physicians as as they conduct special rounds together and discuss and examine problem cases, and the amount of patient care time junior officers spend in routine procedures for which supervision is not necessary. As would be expected,

TABLE 3. SUPERVISION OF HOUSE OFFICERS BY YEAR OF TRAINING (percent of time spent in patient care) (1975)

Supervision	Year of postgraduate training				
	One	Two	Three	Four	Five or more
Type I hospitals					
Total	100	100	100	100	100
Attending physician present	23	30	41	39	40
Senior house officer present	20	10	3	5	6
Independent, review expected	41	53	45	44	43
Independent, no review expected	9	4	8	7	10
Data unavailable	7	3	3	5	1
Type II hospitals					
Total	100	100	100	100	100
Attending physician present	15	22	28	28	30
Senior house officer present	23	16	14	7	16
Independent, review expected	47	51	47	51	40
Independent, no review expected	10	10	10	11	12
Data unavailable	5	1	1	3	2
Type III private settings					
Total	100	100	100	100	100
Attending physician present	11	13	15	18	22
Senior house officer present	19	12	9	9	9
Independent, review expected	48	57	56	48	51
Independent, no review expected	19	16	15	22	16
Data unavailable	3	2	5	3	2
Type III mixed settings					
Total	100	100	100	100	100
Attending physician present	22	30	35	36	40
Senior house officer present	20	11	9	7	7
Independent, review expected	45	47	43	40	39
Independent, no review expected	8	9	10	13	12
Data unavailable	5	3	3	4	2
Type III non-private settings					
Total	100	100	100	100	100
Attending physician present	15	19	21	22	25
Senior house officer present	22	14	8	15	7
Independent, review expected	48	55	54	49	52
Independent, no review expected	11	8	13	13	16
Data unavailable	4	4	4	1	0

Source: Institute of Medicine House Officer Activity Analysis.

the percent of patient care time with a more senior house officer present decreased as year of training increased. Time spent in patient care with direct supervision by an attending physician or more senior house officer was relatively constant throughout training. Beyond the fourth year, residents spent slightly more patient care time under direct supervision by an attending physician; they also spent slightly more patient care time independently without expectation of review than did other residents.

Depending on year of training, house officers in Type I hospitals and in mixed settings in Type III hospitals reported that from 40 to 47 percent of patient care time was spent under direct supervision of an attending physician or senior house officer. House officers in Type II hospitals reported from 35 to 46 percent of patient care time under direct supervision. House officers in private and non-private settings in Type III hospitals reported the lowest proportion, from 25 to 37 percent, of patient care time under direct supervision of an attending physician or more senior house officer.

Outpatient Services

Outpatient services in teaching hospitals include outpatient departments and emergency rooms. Table 4 shows that the median number of outpatient department encounters in Type I hospitals was about one-third, and in Type III hospitals about four-fifths, the number in Type II hospitals. Similarly, the median number of emergency room encounters in Type I hospitals was three-tenths and in Type III hospitals one-half, the number in Type II hospitals.

TABLE 4. OUTPATIENT DEPARTMENT AND EMERGENCY ROOM ENCOUNTERS

Outpatient service	Type I hospitals	Type II hospitals	Type III hospitals
Outpatient department			
Median	47,811	133,677	103,866
Range	5,190-591,920	26,210-830,287	5,911-400,602
Emergency room			
Median	18,787	66,784	36,750
Range	4,036-67,757	3,823-382,766	2,141-121,598

Source: Institute of Medicine field data.

Type II hospitals generally served low-income people who relied on the institution not only for inpatient care but also for outpatient care. Type III hospitals, usually tertiary care centers, also provided outpatient care and emergency services to surrounding communities. Both Type II and Type III hospitals had numerous specialty services. On the average, there were 36 specialty clinics in Type II hospitals, and 33 specialty clinics in Type III hospitals. In comparison, the average number of specialty clinics in Type I hospitals was only 11. Physicians in Type I hospitals are more likely to see patients in their private offices than in a hospital clinic.

Outpatient Departments. The outpatient departments of teaching hospitals serve several purposes and include clinics for general and special problems and private and non-private patients. Seventy-four of the 81 hospitals in the sample had some type of clinic. Type I hospitals had outpatient departments in 18 of 23 institutions, and all 20 Type II hospitals maintained outpatient departments. Thirty-six of 38 Type III hospitals had outpatient departments.

In all except nine outpatient departments, classification of patients could be determined. Only five hospitals (three Type I and two Type III) had outpatient facilities for private patients only. Thirty-nine hospitals (five Type I, 17 Type II, and 17 Type III) had outpatient departments for non-private patients only, and the remaining 21 hospitals had outpatient departments for both private and non-private patients. Private patients in the outpatient department had an appointment with a specific attending physician. Non-private patients came to the institution for care. Classification was not related to the patient's ability to pay. In outpatient departments established and staffed by the hospital, there was typically one charge to the patient for both physician and institutional services, and both attending physicians and house officers were paid by the hospital for their patient care activities in the outpatient department. The private patient who visited his physician in a clinic was billed by his doctor on a fee-for-service basis.

Most private clinics functioned much like private physician offices since their purpose was to provide a setting for teaching physicians to see their private patients. At many sample institutions, the hospitals or medical schools leased, rented, or gave space to teaching physicians for use as private offices or group practice clinics. House officers were rarely assigned to private clinics, but were sometimes involved in the care of private patients at the invitation of the attending physician.

The most common outpatient clinics were general clinics that served as primary care facilities and included such services as internal medicine, pediatrics, and obstetrics and gynecology. Ninety percent of the sample hospitals with outpatient departments had general clinics in which patients without financial or geographic access to other physicians were seen. Staff physicians and house officers also saw patients for follow-up care in these general clinics. Patients could request a specific physician in most general outpatient departments, but since staff rotated there was little assurance that the patient would receive care from the same attending physician or house officer at every visit.

In the hospitals in the sample, house officers spent an average of 15 percent of total patient care time in outpatient departments. Interview data indicated that house officers performed most patient care activities in the outpatient departments regardless of hospital type. Several sample Type II hospitals did not have attending physicians present in the outpatient department. House officers had primary responsibility in these institutions. Most Type II and Type III hospitals had attending physicians assigned or hired to supervise patient care activities. These attending physicians generally did not deliver patient care, except in problem cases. Teaching physicians in specialty clinics, however, often provided care to patients.

Table 5 shows the level of supervision of house officer patient care activities in outpatient departments. Usually, outpatient departments were staffed by physicians in the second or third year of postgraduate training. These house officers spent about the same amount of patient care time under the supervision of an attending physician as did house staff in the second or third year of postgraduate training in the inpatient area. However, house officers in outpatient departments reported more patient care time in independent activities with no expectation of review, and less time in independent activities with expectation of review, than house officers on inpatient services.

TABLE 5. SUPERVISION OF HOUSE OFFICERS IN OUTPATIENT DEPARTMENTS (percent of time spent in patient care) (1975)

Supervision	Type I hospitals	Type II hospitals	Type III hospitals
Total	100	100	100
Attending physician present	37	28	31
Senior house officer present	4	15	11
Independent review expected	43	40	36
Independent, no review expected	12	13	16
Data unavailable	4	4	6

Source: Institute of Medicine House Officer Activity Analysis.

Emergency Rooms. Emergency rooms in the hospitals in the sample ranged from small trauma units to large departments staffed to treat both trauma and walk-in cases. Patients were not classified in the emergency room by the same criteria used in the inpatient area. Patients who had a relationship with a staff physician before coming to the emergency room sometimes were considered private. Other patients usually were not classified.

Staffing patterns in emergency rooms ranged from facilities staffed entirely by nurses to emergency rooms directed by physicians on contract with the hospital. Table 6 shows the extent to which attending physicians staffed emergency rooms in the hospitals in the sample.

TABLE 6. EMERGENCY ROOM STAFFING BY ATTENDING PHYSICIANS (percent) (1975)

Staffing	All hospitals	Type I hospitals	Type II hospitals	Type III hospitals
Total	100	100	100	100
Attending physician present	40	25	36	51
Physician under contract present	13	25	--	15
Attending physician on call	25	31	29	19
Attending physician not on call	22	19	35	15

Source: Institute of Medicine field data.

In 22 percent of all hospitals in the sample with emergency rooms, staff physicians had no specified responsibility for either patient care or supervision of house officers. In these hospitals, house officers had primary responsibility for patients, although attending physicians usually were available for complicated emergencies. An attending physician was on call in an additional 25 percent of the hospitals, and a staff physician was present in the emergency room in 53 percent of the hospitals.

First and second year house officers provided most physician services in emergency rooms regardless of hospital type. House officers spent an average of ten percent of total patient care time in emergency rooms where, according to hospital personnel, they usually were responsible for the examination and treatment of patients and for the decision to release or admit a patient unless the patient was private. If a patient had a prior relationship with a staff physician, the hospital usually attempted to contact the physician and he decided the patient's disposition.

The level of supervision of house officers in the emergency room is shown in Table 7. House officers spent a greater percentage of patient care time independently, without expectation of review, in the emergency room than they did in the inpatient area or in the outpatient department. An attending physician was present and supervising only six to 11 percent of patient care time. House officers worked independently, either with or without expectation of review, for almost three-quarters of the patient care time spent in the emergency room.

TABLE 7. SUPERVISION OF HOUSE OFFICERS IN EMERGENCY ROOMS (percent of time spent in patient care) (1975)

Supervision	Type I hospitals	Type II hospitals	Type III hospitals
Total	100	100	100
Attending physician present	11	8	6
Senior house officer present	5	18	16
Independent, review expected	54	46	53
Independent, no review expected	24	23	15
Data unavailable	6	5	10

Source: Institute of Medicine House Officer Activity Analysis.

* * *

FINDINGS

Patients were classified as private or non-private, usually on the basis of two non-medical criteria: patient-physician relationship and ability to pay.

Hospitals always screened for ability to pay hospital charges but did not screen specifically for ability to pay physician charges.

Twenty-three of 81 hospitals in the sample had almost all private patients. The majority of patients in these institutions had a patient-physician relationship with their attending physician before admission to an inpatient service. The physician, rather than the patient, determined where the patient would receive hospital care.

Twenty sample hospitals had non-private patients only. The majority of patients in these hospitals went to an institution, rather than to a physician, for medical care. Most patients had no or limited ability to pay for hospital services.

In 38 sample hospitals, there were both private and non-private patients. Patient-physician relationship was the first criterion for patient classification. Ability to pay became the primary determinant for classification if the patient had to be assigned an attending physician during admission.

Sample hospitals were most likely to have both private and non-private patients, regardless of ownership or education association with a medical school. All local government-owned hospitals which had non-private patients only, were an exception. If hospitals with both patient classifications were excluded, privately owned hospitals tended to have private patients only and publicly owned hospitals tended to have non-private patients only.

There were more Medicare patients in hospitals with private patients only and hospitals with both private and non-private patients. There were more Medicaid patients in hospitals with non-private patients only. Medicare beneficiaries able to pay deductibles and coinsurance generally were classified as private in hospitals which had both private and non-private patients.

Beds in geographic settings which could be identified as either private or non-private accounted for a small percentage of total beds in those hospitals with both private and non-private patients.

Hospitals with private patients only had fewer teaching programs than hospitals with non-private patients only or hospitals with private and non-private patients. Hospitals with private and non-private patients tended to have teaching programs in all hospital services.

House officers who saw non-private patients had more responsibility for patient care on inpatient services than house officers who saw private patients.

House officers in hospitals with private patients only and in mixed setting in hospitals which had both private and non-private patients received more direct supervision from attending physicians than did house officers in hospitals or hospital settings with non-private patients only. House officers in all hospitals and hospital settings, however, spent most patien care time either directly supervised or independently with expectation of review.

House officers were generally more responsible for patient care activities and spent more time independently, without supervision, in outpatient areas than they did in inpatient areas.

REFERENCES

Chapter 3

[1] U.S. Congress, Senate, Committee on Finance, Medicare and Medicaid: Problems, Issues, and Alternatives, Report of the Staff, 91st Cong., 1st sess., February 9, 1970.

[2] Association of American Medical Colleges, A Study of the Impact of Section 227, Public Law 92-603, on Selected Academic Medical Centers (Washington, D.C.: Associaton of American Medical Colleges, 1973).

Chapter 4

GRADUATE MEDICAL EDUCATION

The distinguishing characteristic of teaching hospitals is that they are the sites of graduate medical education programs.* In these programs, house officers acquire experience, skill, and knowledge in clinical settings by participating in patient care with teaching physicians.

HISTORY AND GROWTH OF GRADUATE MEDICAL EDUCATION PROGRAMS

During the early 1800s, any medical school graduate was considered qualified to practice without further training. 1/ During this period, graduate medical education was a voluntary apprenticeship taken under the supervision of a senior physician, to whom the intern often paid a fee for the training he received. 2/ The apprenticeship was a period of clinical training which provided the medical student an opportunity to apply the knowledge and theories learned in medical school, and it served as the completion of preparation for independent general practice.

Few internships existed before the twentieth century and competition for each post was intense. Advances in surgery and surgical techniques at the turn of the century increased the significance of the intern's role in the hospital by requiring trained personnel to administer anesthetics, act as ambulance surgeons, conduct laboratory tests, and assist in operations. 3/

In 1905, the Council on Medical Education of the American Medical Association recommended that medical graduates take an internship in a hospital to complete their basic education. At that time, many schools made it a requirement for the M.D. degree, and some state boards made it a condition of eligibility for licensure.** By the mid-1950s, most medical schools had officially dropped the internship requirement. Today it is not required for award of the M.D. degree, although all except 16 states retain it as a requirement for licensure.

---

*For this study, "graduate medical education" is defined as a period of post-M.D. or D.O. training. Unless otherwise noted, "medical" includes both allopathic and osteopathic medical education.

*By 1910, 70 percent of the United States medical school graduates were seeking internship training.

Since undergraduate medical education gave increasing emphasis to research advances and new technology after World War II, one year of graduate clinica training was found to be inadequate as a preparation for independent practice. 4/ The expansion of scientific knowledge led to the division of clinical medicine into specialty disciplines, which required advanced training to prepare one for the practice of a specialty. The term "residency" was first applied to such training at Johns Hopkins Hospital in the 1890s, and gradually came into common use. 5/

Before World War I, there were a few residencies in the most prestigious university hospitals; few specialists were produced. After World War II, however, the move toward specialization was accompanied by an expansion of residency training opportunities that far outnumbered the medical school graduates available to fill them. 6/ This increase was due primarily to the availability of federal funds for training, the demand for training created by returning veterans, the rapid growth of technology, and the fact that more hospitals were establishing specialty services. As a result, hospitals found themselves competing for the best candidates.

As with the internship, neither the content nor duration of residency training were standardized. Although broad general standards for training were set out in the Essentials of Approved Residencies published by the AMA Council on Medical Education, each specialty group developed its own criteri for program approval. 7/ There was little coordination in training until the residency review committees were established in the 1950s to monitor the quality of residency training and to centralize evaluation.

The fragmentation of responsibility among the approval bodies which has characterized graduate medical education in the United States has become a topic of concern to the various organizations involved. In the past 25 year there has been increasing pressure to abolish the internship as a separate period of training. Internships were originally established as "rotating," with from 12 to 24 months of training in each of the specialties of medicine surgery, pediatrics, and obstetrics and gynecology. As specialization increased, however, "straight" internships developed, which were little different in content from the first year of a residency program. In 1966, the AMA sponsored the Citizens Commission on Graduate Medical Education for the purpose of defining the characteristics of the "ideal" graduate education program. One of the major recommendations of this commission -- whose report was known as the Millis Report -- was to combine the internship and residency years into a single period of graduate medical education to be called a residency and to be planned as a unified whole. In July, 1975, the freestanding internship was discontinued and the first year of graduate education was included in a residency program.

The evolution of graduate medical education has also seen a change in the relationship between teaching hospitals and medical schools. For several years, the Association of American Medical Colleges (AAMC) has attempted to bring graduate medical education under the control of academic health centers. The AAMC recommended that:

> [T]he professional aspects of education for health and medical sciences should be regarded as an essential function and a fully integrated component of university organization, with decreasing dependence upon or control by organized professions and their related associations. 8/

In 1965, the AAMC sponsored a report to focus on the broader aspects of medical education. Known as the Coggeshall Report, its recommendations that academic medical centers assume institutional responsibility for graduate medical education were endorsed by the AAMC in 1971. Increasingly, independent teaching hospitals have sought academic affiliation with medical schools, and members of their medical staffs have received academic appointments in recognition of their participation in the teaching programs.

The Coordinating Council on Medical Education (CCME) and the Liaison Committee on Graduate Medical Education (LCGME) were established in 1972 by the Association of American Medical Colleges (AAMC), the American Board of Medical Specialties (ABMS), the American Hospital Association (AHA), the American Medical Association (AMA), and the Council of Medical Specialty Societies (CMSS). The CCME was established to review and generate policies applicable to all levels of medical education. Such policies require the review and approval of the five parent organizations. In addition, the CCME is responsible for coordinating all policies and activities of the Liaison Committee on Medical Education, the Liaison Committee on Graduate Medical Education, and the Liaison Committee on Continuing Medical Education which accredit, respectively, schools of medicine, graduate medical education programs, and institutions and organizations which provide continuing medical education. The phasing out of the freestanding internship and the establishment of the LCGME and the CCME are the most recent attempts to unify graduate medical education.

Toward the end of the nineteenth century, osteopathic medicine developed out of the philosophy, expounded by Dr. Andrew Still, that disorders of the neuromusculoskeletal system can cause disorders that may adversely affect the body's normal trend to health and that manipulative therapy can alter favorably such disorders. Dr. Still founded the Kirksville College of Osteopathic Medicine in 1892. 9/

Formal postgraduate training in osteopathy was first recognized with the establishment of the Committee on Hospitals of the American Osteopathic Association (AOA) in 1930. This committee was charged with setting requirements for the training of interns and residents and developing guidelines to evaluate patient care within osteopathic hospitals. Between 1931 and 1935, the American College of Osteopathic Surgeons (ACOS) was responsible for the inspection of training programs. From 1935 until 1949, the AOA Bureau of Hospitals shared this activity with the ACOS, and in 1949, full responsibility passed to the AOA.

In 1936, 18 osteopathic hospitals were approved for training 81 interns. By 1973-74, there were 67 hospitals with approved programs training 487 interns and 452 residents. 10/ One year of internship training in an approved osteopathic hospital is required by 35 states for licensure. Available statistics indicate that following the one year of internship, 75 percent of graduates from osteopathic schools become general practitioners, in accor with the basic tenets of osteopathic training.

TABLE 1. NUMBERS OF INTERNSHIPS AND RESIDENCIES OFFERED IN OSTEOPATHIC MEDICINE (selected years, 1948-1974)

Year	Internships	Residencies
1948-49	325	NA
1949-50	350	NA
1963-64	NA	239
1964-65	540	NA
1968-69	568	652
1969-70	569	NA
1970-71	560	NA
1971-72	586	NA
1972-73	598	825
1973-74	643	889

Source: American Association of Colleges of Osteopathic Medicine, personal communication, November 18, 1975.
NA: Not available.

Although the number of osteopathic internships offered has remained fairly steady, increasing only 19 percent since 1964-65, residencies offered have more than tripled in the same period (Table 1). The distribution of residencies offered by specialty (Table 2) depicts the rapid growth in training in the surgical subspecialties, internal medicine, pediatrics, pathology, and radiology.

Although the major expansion of graduate medical education began immediately after World War II in response to the demand created by returning veterans, federal programs to fund research and training, which contributed to the growth of subspecialty training, did not begin until the late 1950s. Thus, much of the real growth in the number of graduate medical education position has taken place since then.

TABLE 2. APPROVED OSTEOPATHIC RESIDENCY PROGRAMS (selected years, 1963-1974)

Specialty	1963-64	1968-69	1973-74
Total approved programs	239	652	889
Anesthesiology	25	85	99
General practice	--	--	15
Internal medicine	48	122	169
Neurology	--	1	9
Obstetrics & gynecology	14	38	65
Ophthal. & otorhinolaryn.	8	30	54
Pathology	13	46	52
Pediatrics	10	35	46
Proctology	--	--	1
Rehabilitation medicine	--	--	4
Psychiatry	--	44	25
Child psychiatry	--	--	3
Radiology	38	79	108
Roentgenology	6	5	3
Surgery			
General	65	129	146
Neurological	--	5	6
Orthopedic	12	29	66
Thoracic cardiovascular	--	--	3
Urological	--	4	15

Source: American Osteopathic Association, personal communication, November 17, 1975.

In 1962, 1,212 internship programs offered 12,074 positions, of which 68 percent were filled. 11/ At the same time, 5,823 residency programs offered 35,403 positions, of which 80 percent were filled. These programs were being conducted in 1,445 hospitals, only 24 percent of which were associated in any way with medical schools. By contrast, in 1974 there were 2,204 internship programs offering 12,165 positions and 4,918 residency programs offering 54,137 positions; 91 percent of these positions were filled. Data from the national survey conducted as part of this study indicated that there were approximately 1,250 teaching hospitals in mid-1975.

The number of internships increased steadily from 1962 to 1972, but dropped sharply in the last two years with the phasing out of freestanding internships, so that in 1974 less than one percent more were offered than in 1962 (Table 3). Residency positions, however, continued to increase markedly: in 1974 there were 53 percent more residency positions offered than in 1962. Much of the increase in the last three or four years results from the transformation of internships into first-year residency positions.

Since the initial rapid growth in the 1950s, the greatest increase in the total number of internships and residencies offered was in the period from

1968 to 1974. During the same time, the number of teaching hospitals associated with medical schools almost doubled.

TABLE 3. NUMBER OF INTERNSHIPS AND RESIDENCY POSITIONS OFFERED (selected years, 1946-74)

Year	Internships	Annual percent change	Residencies	Annual percent change
1973-74	12,165	-11	54,137	5
1972-73	13,650	-12	51,658	3
1971-72	15,422	*	50,198	8
1970-71	15,354	2	46,584	3
1969-70	15,003	6	45,351	7
1968-69	14,112	3	42,351	2
1967-68	13,761	1	41,695	6
1966-67	13,569	5	39,384	1
1965-66	12,954	2	38,979	1
1964-65	12,728	4	38,750	4
1963-64	12,229	2	37,356	2
1962-63	12,024	-1	36,502	3
1961-62	12,074	-4	35,403	8
1960-61	12,507		32,786	
1955-56	11,616		26,516	
1950-51	9,370		19,364	
1945-46	8,429		8,930	

Source: Directory of Internships and Residencies, 1973-74 (Chicago: American Medical Association, 1974).
* - Less than 0.5 percent.

Table 4 shows the distribution of residency positions by specialty and the percent changes for the five-year periods 1964-69 and 1969-74. Fourteen of the 23 specialties which offered residencies in 1963-64 showed a greater growth in the second five-year period. General practice, which increased slightly during the period 1964-1969, showed a 35 percent decrease in residencies filled in the period 1969-1974. This decrease has been more than offset, however, by the growth in family practice residencies filled, from an initial 265 in 1971 to 1,765 in 1974.

The trends in specialty growth can be related directly to the expansion of scientific knowledge contributed by the biomedical research community. Between 1946 and 1950, six institutes were established which formed,

TABLE 4. NUMBER OF RESIDENCY POSITIONS FILLED (selected years, 1964-1974)

Specialty	1964	1969	1974	Percent change 1964-1969	Percent change 1969-1974
Total	29,295	34,609	48,869	18	41
Anesthesiology	1,145	1,502	2,008	31	34
Colon & rectal surgery	16	29	30	81	3
Dermatology	410	512	688	25	34
Family practice	-	-	1,765	-	a/
General practice	370	402	260	9	-35
Internal medicine	5,129	6,163	9,427	20	53
Neurosurgery	435	504	609	16	21
Neurology	503	684	981	36	43
Nuclear medicine	-	-	41	-	b/
Obstetrics & gynecology	2,457	2,503	3,183	2	27
Ophthalmology	969	1,238	1,500	28	21
Orthopedic surgery	1,388	1,573	2,268	13	44
Otolaryngology	621	873	995	41	14
Pathology	1,944	2,230	2,846	15	28
Forensic	-	-	31	-	c/
Neuropathology	-	-	57	-	d/
Pediatrics	1,820	2,185	4,231	20	94
Pediatric allergy	23	65	99	183	52
Pediatric cardiology	33	125	120	279	-4
Physical med. & rehab.	181	277	368	53	33
Plastic surgery	152	201	362	32	80
Psychiatry	3,274	3,620	4,315	11	19
Child psychiatry	343	473	588	38	24
Radiology	1,490	2,240	1,205	50	59 e/
Diagnostic	-	-	2,009	-	-
Therapeutic	-	-	348	-	-
Surgery	5,656	6,064	7,131	7	18
Thoracic surgery	224	279	282	25	1
Urology	712	867	1,122	22	29

Source: Directory of Internships and Residencies, selected years (Chicago: American Medical Association).

a/First offered in 1970-71 (265 positions).

b/First offered in 1973-74.

c/First offered in 1970-71 (20 positions).

d/First offered in 1972-73 (56 positions).

e/Calculation based on the sum of positions for radiology, diagnostic radiology, and therapeutic radiology.

with the National Cancer Institute (1937), the National Institutes of Health (NIH).* NIH was authorized to provide training and instruction and to establish traineeships and fellowships "in matters relating to the diagnosis, prevention, and treatment" 12/ of categorical diseases which fell within the purview of each institute. Authority was provided both for grants to institutions and for direct fellowship stipends for training in specific disciplines. In 1958, in recognition of the need for support in the basic sciences and in areas which spanned the interests of more than one of the seven categorical institutes, the Division of General Medical Sciences (raised to institute status in 1962) was established to provide grants and fellowships for research training in such basic sciences as anatomy and physiology, and in clinical specialties such as anesthesiology and radiology. 13/

Until 1970, NIH grants and fellowships were an important source of support for fellows in the subspecialties of medicine and surgery. Such individuals had usually completed their basic residency training in internal medicine an general surgery. In 1970, training grant support for many of the positions was severely curtailed but other mechanisms were developed for support of training and research in the areas of cancer and heart disease. At the same time, authorization was given for grants to establish family practice training programs. Because training grant funds are usually committed for three to five years in advance, the effects of the cutback in funds are just now becoming evident as some programs start to reduce the number of fellowship positions being offered. In addition to NIH funds, fellows are supported from private foundations, grants, and department operating funds, which may include revenues from the faculty practice plan.

DECISIONS IN GRADUATE MEDICAL EDUCATION

Although graduate medical education is organized, supported, and conducted predominantly on an institutional basis, it is the programs, not the institutions in which they are located, which must be approved by the LCGME, or the AOA. Within the institution and external to it, there are influences which affect the training programs. External influences are exerted by national program approval bodies and by the other institutions involved in any integrated program. Internal considerations include how funds are allocated among training programs, and the number of training positions which can be offered and supported.

External Influences

Accreditation of graduate medical programs is given by the LCGME after revi by the appropriate residency review committee which ascertains that sufficient instructors, patients, and facilities are available to provide adequate training. The specialty boards may impose additional requirements for programs which prepare the graduate physician for board certification.

---

*The National Institute of Mental Health was separated from the NIH and raised to bureau status in the Public Health Service in 1967.

The responsibility for securing the resources required to meet the training standards set by the specialty boards and approval bodies falls to the training program director. Although the hospitals assume most of the financial obligations of the programs, they take little part in decisions about the length and content of programs, even though such decisions may affect their ability to offer the required training. For example, the American Board of Internal Medicine recently rescinded the pathway which permitted some of its candidates to enter subspecialty training after two years of general internal medicine. Beginning in 1978, all trainees in internal medicine will be required to have three years of general internal medicine training. Therefore, hospitals must make available additional third year positions or otherwise rearrange their programs to comply with this requirement. Three types of programs are:

- Independent programs conducted in the sponsoring hospital;
- Bi-lateral programs conducted in a medical school department and a teaching hospital service (or the same clinical service in two hospitals where there is no medical school involvement); and
- Integrated programs conducted in a medical school department and the clinical services in two or more hospitals. Residents rotate from hospital to hospital. The hospital may pay the house officer salaries directly or they may pay the salary amounts into a central fund (usually administered by a medical school or medical school department or a nonprofit organization).

A teaching hospital may sponsor any of the three types of programs. Although there is a trend toward integrated programs, with a small and decreasing number of independent programs, most graduate medical education is conducted in confederations of academic clinical departments and hospital services whose ties and allegiances vary greatly in their strength and character and which have little central control at other than the program level.

Internal Influences*

At the institution level, decisions about graduate medical education are made by several individuals and committees which represent both programmatic and institutional perspectives. The training program director has primary responsibility for the residency (or internship) program. He is usually

---

The following discussion does not apply to VA hospitals.

chief of the service which sponsors the program within the hospital, and at principal hospitals. He is also often the chairman of the respective medical school department.

The hospital administrator, the director of medical education, the hospital graduate medical education committee, the governing board, and in public hospitals, the government unit which owns the hospital also have a part in the decisions made. In integrated training programs, the chiefs of the affiliated hospital services share responsibility with the training program director. The medical school dean, the faculty graduate medical education committee, and, in the public schools, the state government, also have a voice in decisions made about graduate programs.

Some institutions have formed joint committees to plan activities and solve problems in their graduate medical education programs. Typically, the membership of these committees is drawn from the three groups described above. Because of their central role in graduate medical education, the training program directors usually are members of such joint committees and of the school or hospital committees mentioned above.

For this study, data were collected from representatives of the sample medical schools, teaching hospitals, and training program directors about the determinants of the number and size of programs and the importance of funding as a determinant of size.

Training program directors at the sample sites were requested to list the factors considered in setting the number of house officer positions to be offered in their program for the year 1974-1975. Factors contributing to a sound educational environment, such as adequate facilities, patient mix, and teaching staff, were cited most often in combination with the constraint of availability of funds for house officers salaries. Almost 25 percent of the respondents also indicated concern for state or national manpower requirements and community needs.

Table 5 shows the percent of programs in which directors cited funding as a consideration in deciding the number of positions to be offered in 1974-75

Programs in the non-surgical specialties appear to be much more constrained by funding considerations than programs in the surgical specialties, particularly in the principal and associated private hospitals. Training program directors in independent private hospitals expressed more concern with factors affecting the educational environment, such as the number and qualifications of potential teaching physicians and availability of patients and physical facilities.

Fifty-eight programs were established in the sample schools within the past five years. Training program directors of 44 of these, including nine new family practice programs, cited community patient care needs as of prime

TABLE 5. FUNDS CITED AS A CONSIDERATION IN ESTABLISHING SIZE OF HOUSE OFFICER PROGRAMS

Specialty	Principal		Associated		Independent	
	Total programs (number)	Funds cited (percent)	Total programs (number)	Funds cited (percent)	Total programs (number)	Funds cited (percent)
Total	206	48	147	50	25	24
Family practice	5	80	3	67	2	0
Medicine a/	60	63	42	62	7	43
Surgery	89	30	54	30	12	25
Psychiatry	10	90	9	67	0	
Anesthesiology, radiology, & pathology	50	40	35	54	3	0
Other	2	0	4	100	1	0

Source: Institute of Medicine field data.
a/Includes pediatrics.

importance in initiating the program. Eight of the family practice programs also indicated that state and national health manpower requirements were a primary consideration in initiating their programs.

FINANCING GRADUATE MEDICAL EDUCATION

Traditionally, hospital costs associated with graduate medical education, such as house officer salaries (which in 1975 averaged $11,250 per year for first-year residents in hospitals associated with a medical school 14/), have been paid out of patient care revenues, or from state and local appropriations. These costs are included in the computation of hospital daily rates. At the hospitals in the study sample, house officer salaries represented an average of four percent of total expenditures. In recent years, concern has been expressed as to whether such costs should continue to be defined as patient care costs and, therefore, paid by or on behalf of the patient receiving care in teaching hospitals, or should be defined as education costs to be financed by the community at large. 15/

If each beneficiary program were to pay its fair share of the house officer salary and other training costs within the hospital, an allocation of the house officer's time to the major programs to which he contributres -- education, patient care, his own learning, and, in some institutions, research -- would be required. However, 47 percent of a house officer's time is spent in the joint activities of patient care and teaching or patient care under direct supervision, a joint patient care and learning situation for the house officer (Table 6). Only half his time is spent in distinct and separate activities. A method such as "marginal analysis," used by the Institute of Medicine in determining the costs of medical student education, 16/ might be used to allocate house officer time among separate activities.

TABLE 6. PERCENT DISTRIBUTION OF HOUSE OFFICER TIME

Activities	Total	Principal	Graduate associated	Undergraduate associated	Independent
Total	100	100	100	100	100
Patient care total	67	64	70	73	71
Patient care with direct supervision	29	28	32	31	34
Patient care without direct supervision	38	36	38	42	37
Teaching with patient care	17	18	17	14	15
Learning	10	10	8	10	10
Teaching	2	3	2	1	2
Research	3	4	2	1	1
Administration	1	1	1	1	1

Source: Institute of Medicine field data.

Institutional Support of House Staff Salaries

There are three main patterns of institutional payment of house staff salaries. All the funds may be provided by the hospital, or the medical school acting as a transfer agent for public funds, or they share the costs between them.* Table 7 shows the patterns of payment for house staff salaries at the 81 non-federal sampled hospitals. House staff at VA hospitals in the sample are paid directly by the VA.

---

*At one site, the medical school and its associated hospitals have established a nonprofit corporation to select and pay the house officers in the corporation's approved training programs. The hospitals reimburse the corporation for their respective share of the house staff salaries, and the medical school shares the administrative costs equally with the hospitals.

TABLE 7. INSTITUTIONAL PAYMENT OF HOUSE OFFICER SALARIES

Institution paying salaries	Total	State princ.	Local princ.	Private princ.	Local assoc. private	Grad. assoc. private	Ungrd. assoc. private	Independ. private
Total	81	3	4	9	11	24	10	10
Hospital	50	5	-	3	7	15	10	10
Medical school	6	2	-	-	1	3	-	-
Shared	25	6	4	6	3	6	-	-

Source: Institute of Medicine field data.

At 50 of the 81 non-federal hospitals, the full costs of house staff salaries are paid from hospital operating funds derived mainly from hospital charges to patients. Grants, gifts, endowment income, and income from the auxiliary enterprises of the individual hospitals comprise less than 15 percent of total funds. At the six hospitals which indicate the medical school as the payor of house staff salaries, the funds were obtained from state appropriations. State money is usually appropriated to medical schools to be used at the discretion of the school for support of its medical programs. However, the school often accepts responsibility for provision of care to the state indigent population as a condition for receiving the appropriations. Hence, at four of the six state hospitals where costs are shared by the hospital and medical school, the medical schools use state money for their portion. At the other hospitals in this group, several sources including local government funds, grants, and practice plan money are used to make up the medical school share of salaries. However, at 20 of the 25 hospitals where costs are shared, the hospital pays 75 percent or more of the salaries.

Programs within the same hospital may have different sources of funds for house officer salaries. For example, federal training grants are available for the establishment of family practice programs. Private donors and foundations may provide funds for training of house staff in particular specialties, and practice plan money may be used to support one or two residents in areas of particular interest to the participating physicians.

Table 8 shows responses from training program directors about sources of funds for house staff salaries in their particular programs. It is clear

TABLE 8. NUMBER OF PROGRAMS BY SOURCES OF FUNDS FOR HOUSE OFFICER SUPPORT

Source of funds	Total	State princ.	Local princ.	Private princ.	Local assoc. private	Grad. assoc. private	Ungrd. assoc. private	Indepe priva
Total programs	407	122	27	78	44	56	44	36
Hospital	245	26	19	41	40	39	44	36
Operating fund	215	18 a/	17	36	34	34	42	34
Grants and operating funds	30	8	2	5	6	5	2	2
Medical School	99	55	7	17	4	16	-	-
Department a/	88	55	6	12	4	11	-	-
Grants	10	-	-	5	-	5	-	-
Department & grants	1	-	1	-	-	-	-	-
Multiple sources b/	63	41	1	20	-	1	-	-

Source: Institute of Medicine field data.

a/These are mainly state and local government funds. A few programs at the private schools use practice plan money to support one or two fellows in the programs.

b/Combination of hospital and medical school funds plus grants or contracts with other hospitals or agencies.

that the principal hospital training programs have access to more fund sources than those not so closely associated with medical schools. However more than half of all programs rely solely on hospital operating funds; the second major source of support is state and local government appropriations Most of the 88 programs indicating the medical school department as their source of funding use state appropriation money to pay house officer salaries. Medical service plan funds are used to support individual house officers in a few of these programs.

Included in the group which receives support from multiple sources is a program for which the university hospital pays the salaries of all first, second, and third year residents from hospital operating funds, and the school pays fourth year residents from several sources including state appropriations and training grants.

Most programs which indicate grants as a sole source of funds are in the area of psychiatry and family practice.

Medicare and Medicaid Role in Support of House Officer Salaries

Hospitals merge Medicare and Medicaid monies with other patient care revenu to meet operating costs, including house officer salaries. This makes it difficult to ascertain whether there are differences in the amount of support received by each specialty. By the very nature of the program participants, Medicare does not support the specialties of pediatrics and obstetrics. Beyond these specific exclusions, however, it must be assumed that house officer salaries in different specialties are supported in the same proportion as other expenses in the hospital as a whole. Thus, since Medicare and Medicaid funds represent an average of 37 percent of revenues in the sampled hospitals, these funds also represent 37 percent of house officer salary support. The size of the reimbursement amount is closely tied to the inpatient service load; hospitals are indirectly influenced to emphasize training in specialties which staff the inpatient services. The primary care specialties which provide care in the outpatient department, and which train their house staff to a large extent in that setting, are penalized by current reimbursement formulas. Many health insurance programs do not provide coverage for outpatient care, and Medicare reimburses only 80 percent of the costs of such care with the balance to be collected from the patient who is often unable to pay. Thus, hospitals have less economic incentive to expand their primary care training programs. This problem is particularly acute in hospitals which provide outpatient care to a large number of Medicaid recipients because Medicaid generally pays fees well below costs for outpatient care.

In those cases where house officers are paid from practice plan funds, a portion of their salaries must be assumed to come indirectly from Part B of Medicare.

* * *

FINDINGS

Hospital operating funds, composed largely of patient care revenues, are the major source of support for house officer salaries. Those medical schools which share or pay the full cost of these salaries tend to use state appropriation funds for this purpose.

Training programs in hospitals closely associated with medical schools tend to have access to more sources of funds than those less involved.

Because Medicare and Medicaid funds are merged with other patient care revenues to meet ongoing operating costs, it is not possible to separately determine the extent to which they support individual specialties. However, the reimbursement formulas encourage hospitals to expand inpatient specialties and, thus, penalize the specialties which provide care and much of their house officer training in ambulatory care settings.

REFERENCES

Chapter 4

[1] Rosemary Stevens, American Medicine and the Public Interest (New Haven: Yale University Press, 1971), p. 177.

[2] John E. Deitrick, and Robert C. Berson, Medical Schools in the U.S. at Mid-Century (New York: McGraw-Hill, 1953).

[3] Stevens, pp. 117-18.

[4] National Board of Medical Examiners, "Evaluation in the Continuum of Medical Education," Report of the Committee on Goals and Priorities of the NBME (Philadelphia, 1973), p. 8.

[5] Stevens, p. 121.

[6] National Board of Medical Examiners, p. 8.

[7] Stevens, p. 389.

[8] Ibid.

[9] Education Annual, supplement: The Journal of the American Osteopathic Association 73 (1974).

[10] American Osteopathic Association, personal communication, November 17, 1975.

[11] Medical Education in the United States, 1961-1962, supplement: The Journal of the American Medical Association 182 (November 17, 1962).

U.S. Congress, Public Health Service Act Amendments, P.L. 81-692, Section 433(a).

U.S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, Effects of NIGMS Training Programs on Graduate Education in the Biomedical Sciences (1969).

Medical Education in the United States, 1973-74, supplement: The Journal of the American Medical Association 23 (1975).

H. R. Cathcart, "External Fiscal Controls on the Teaching Hospital: The Philadelphia Experience," paper presented at the Association of American Medical Colleges, Council of Teaching Hospitals, Miami Beach, Florida, November 3, 1972.

Institute of Medicine, Costs of Education in the Health Professions (Washington, D.C.: National Academy of Sciences, January, 1974).

Chapter 5

MEDICARE INTERMEDIARIES AND CARRIERS: THEIR RESPONSIBILITIES IN TEACHING HOSPITALS

he overall responsibility for administration of the Medicare program rests ith the Bureau of Health Insurance in the Social Security Administration SSA), but the law allows some administrative responsibilities, mainly eimbursement for services furnished beneficiaries, to be contracted out o intermediaries and carriers which act on behalf of the federal government.

ntermediaries are responsible for making reimbursements to institutional roviders on a cost basis. The intermediaries are selected by a nominating rocess in which individual providers, or groups of providers such as ospital associations, can designate what organization they wish to have erve as their intermediary. Consequently, hospitals in the same geographic rea may be served by different intermediaries. Providers also have the ption of dealing directly with the Social Security Administration's Division f Direct Reimbursement, which acts in the same capacity as an intermediary. ost of those which have chosen to do so are state or local government wned hospitals. In 1975, there were 108 intermediaries, excluding SSA: 2 were operated by Blue Cross Plans; ten by The Travelers Insurance Comanies; nine by Aetna Life and Casualty Insurance Company, and 17 by other ommercial insurance companies.

arriers have responsibility for making payments for physicians' and other edical services under Part B of Medicare. They make payments to physicians r other suppliers of services or may pay the beneficiary directly. The ecretary of the Department of Health, Education, and Welfare designates the arrier to serve a specific geographic area, which often encompasses an ntire state. In 1975, there were 61 Part B carriers of which 24 were perated by Blue Shield Plans and the remainder by commercial insurers.

oth carriers and intermediaries are reimbursed only for the actual cost f the activities they undertake for Medicare; no profit is built into the ontract. Willingness to participate arises from an interest in performing public service thereby enhancing their public image and their ability o attract private clients. There may be indirect financial benefits as ell; for example, economies of scale may result from a combined claims rocessing operation.

INTERMEDIARY RESPONSIBILITIES

The intermediary reimburses "providers of services" (hospitals, extended health care facilities, and home health agencies) under Part A on the basi of "reasonable costs." In hospitals with approved teaching programs, allowable costs relating to teaching programs include salaries for interns and residents, other direct expenses for graduate medical education, and compensation to staff physicians for teaching and supervision. In certain cases, intermediaries also reimburse providers for professional patient ca services. The professional services of physicians in such provider-based specialties as pathology and radiology, and professional services delivere in the outpatient area are usually included with the charges of the provid in a combined bill. The intermediary maintains a file on the provider-bas physicians in each of the hospitals it serves. For each provider-based physician, the hospital supplies to the intermediary the allocation of the physician's time among administrative, supervisory, and teaching activitie and those activities which involve direct patient care. The intermediary also has on file copies of contractual agreements between physicians and institutions, letters of financial agreements between physicians and hospitals which give the hospital authority to bill on behalf of the physician, and copies of fee schedules or charges used by provider-based physicians. If a combined bill is submitted, the intermediary reimburses the hospital the professional patient care services portion of provider-based physician activities on a charge basis from Part B funds (an administrative adjustme is made later between Medicare Part B and Part A funds). The intermediary reimburses the hospital for physician administration, teaching, and supervision on a reasonable cost basis from Part A funds.

Under Section 15, Public Law 93-233, which implemented the cost reimbursement provisions of Section 227, Public Law 92-603 on an interim basis, som hospitals have elected to have all staff physician professional services reimbursed on a reasonable cost basis. The intermediary reimburses for pr fessional services from Part A on a cost basis if the following conditions are met: costs to the program are less than if physicians in the institut billed fee-for-service; all physicians sign agreements not to bill for pro fessional services under Part B; the hospital lists physician salaries, in cluding the direct patient care portion, as costs in the Medicare cost report. In 1975, 27 such hospitals were dealing directly with the Social Security Administration as their intermediary.

CARRIER RESPONSIBILITIES

Carriers are responsible for making payments for physician services under Part B. Payment is based on a variant of the "usual and customary" charg method used in the private health insurance industry; Medicare payment is made on the basis of "reasonable charges." Reasonable charges are derive by comparing the individual physician's customary charges for specific ervices and the prevailing charges of all physicians in the area in similar pecialties for similar services. The limit on prevailing charges is set t the 75th percentile of the customary charges in the area. In general, he individual physician's customary charge will be paid up to the prevailing imit. In addition, the charge paid by Medicare may not exceed the charge or similar services that the carrier would pay in its private business. f the physician does not accept assignment, the beneficiary files the claim nd receives payment directly from the carrier.

arriers have responsibility for implementation of Intermediary Letter 372 IL 372), "Part B Payments for Services of Supervising Physicians in a eaching Setting." IL 372 was a response by SSA in April of 1969 to the ifficulties which carriers had in determining appropriate payment under art B for teaching physicians who involve interns and residents in the are of their patients. Teaching and supervisory services are reimbursable nder Part A only; the professional services of the physician to the individual patient are reimbursable under Part B only. However, the physician imultaneously teaches and renders patient care.

L 372 set forth the policy that services of attending physicians rendered o beneficiaries in a teaching setting are covered under Part B on a feeor-service basis, if "the services to the patient are of the same character, n terms of the responsibilities to the patient that are assumed and fulilled, as the attending physician renders to his other paying patients." hat the physician renders these "personal and identifiable" patient care ervices must be demonstrated by six criteria specified in IL 372. 1/ The eaching physician must:

review the patient's history, the record of examinations and tests in the institution, and make frequent review of the patient's progress;

personally examine the patient;

confirm or revise the diagnosis and determine the course of treatment to be followed;

either perform the physician's services required by the patient or supervise the treatment so as to assure that appropriate services are provided by interns, residents, or others and that care meets a proper quality level;

be present and ready to perform any service performed by an attending physician in a non-teaching setting when a major surgical procedure or a complex or dangerous medical procedure is performed; and

be recognized by the patient as his personal physician and be personally responsible for the continuity of the patient's care, at least throughout the period of hospitalization.

Carrier Implementation of IL 372

Carriers rely on notes and orders in the Medicare beneficiary's medical record to determine whether teaching physicians meet eligibility criteria for payment outlined in IL 372. Data from a survey* of Medicare carriers conducted by the Institute of Medicine for this study show that different carriers have very different requirements for documentation in the medical record.

As determined by the study group, 24 percent of the carriers require only minimal medical record documentation to be in compliance with IL 372. Thes carriers have established guidelines for audit review which follow the six criteria set forth in IL 372. The guidelines usually require the attending physician's signature on the operative summary or discharge summary or both and specify the number of times, typically three a week, the attending physician's countersignature must be entered on progress notes.

Thirty-seven percent of the carriers have extensive documentation requirements in accord with detailed IL 372 audit guidelines, which specify accept ble and unacceptable medical record documentation for establishment of an attending relationship. Entries in the medical record must indicate performance of specific patient care activities and be written by the attendir physician. Countersignatures are acceptable only if there is reference to the countersigning physician in the context of the note.

Twenty-two percent of the carriers require inadequate documentation. The following carrier requirements are examples of medical record documentatior which the study group considers inadequate:

- face sheet of medical record states name of attending;

- form signed by patient or spouse at time of admission;

- indication that patient is on the service of the attending physician; or

- statement that teaching physician is admitting physician.

Other carriers with inadequate documentation requirements accept attending physician countersignatures as sufficient evidence of compliance with IL 372. Another 17 percent of the carriers conduct no IL 372 medical record audit.

The carriers which require extensive documentation and those which have inadequate documentation requirements are found in every region of the country, but the carriers which require extensive documentation are more concentrated in the Mid-Atlantic and western states than in other geographic areas. The regional offices of the Bureau of Health Insurance do not always view IL 372 implementation as a priority carrier activity, which may account for regional variation.

---

*Data include the responses from 46 carriers which serve teaching physician and teaching hospitals. Ten carriers do not have any teaching physicians their service areas, and there was no response from five carriers. Follow up on-site interviews were conducted with 13 of the carriers which respond to the Institute of Medicine questionnaire.

Documentation criteria are applied only to those medical records which are audited by the carriers. The Institute of Medicine survey showed that all carriers do not maintain the same kinds of information about teaching physicians and teaching hospitals, nor do they select teaching physicians, teaching hospitals, or beneficiary claims for audit in a uniform manner.

All carriers define a teaching hospital as one which has one or more approved graduate medical education programs. However, not every carrier is able to compile an accurate list of the teaching hospitals in its service area, and only 85 percent of the carriers maintain a file for each institution which is considered a teaching hospital.

Carriers routinely define a teaching physician as a physician who is actively engaged in the teaching and supervision of interns and residents. However, since it is difficult for the carrier to differentiate in a given institution between the teaching physician and the staff physician who is not involved with house officers, some carriers include any physician who has a patient in a teaching hospital under the definition of teaching physician. Information maintained by the carrier about teaching physicians varies. Fifty-nine percent of the carriers keep and update rosters of teaching physicians; 50 percent of the carriers have agreements on file stating teaching physician compliance with IL 372 requirements (often a chief of service signs for all teaching physicians on a service); and 41 percent of the carriers can identify how each teaching physician is compensated. Most carriers do not maintain the detailed information on each teaching physician's professional time allocation and salary compensation which intermediaries are required to keep on provider-based physicians. Only 30 percent of the carriers have information on file about how teaching physicians spend their time in various professional activities, and only 26 percent of the carriers have information indicating amount and source of teaching physician compensation. Although intermediaries frequently have this information on teaching physicians if they are provider-based, there is little exchange of information.

Thirty-three percent of the carriers indicated that all teaching hospitals in their service area are audited for compliance with IL 372, and an additional 11 percent of the carriers exclude from audit only teaching hospitals which are reimbursed on a cost basis for physician patient care services. Twenty-two percent of the carriers audit only those teaching hospitals which are affiliated with a university medical center. Seventeen percent of the carriers do not conduct IL 372 audits in community hospitals if it is obvious that patient-physician relationships are private. Seven percent of the carriers exclude hospitals with small teaching programs from IL 372 audit. In IL 70-22, 2/ SSA recommended that "carriers should concentrate their initial efforts...on teaching institutions which have a large service clientele." Nine percent of the carriers specifically indicated that audit is limited to teaching hospitals with service or charity wards.

Even after specific teaching hospitals have been selected for IL 372 review, there is no uniform sampling method used by all carriers to select medical records for audit. As already noted, 17 percent of the carriers do not conduct any medical record audit. One carrier audits the medical records of beneficiaries determined by a random sample of beneficiary claims. Another carrier screens claims to determine if the attending physician is allowed to bill (presumably a teaching physician is allowed to bill if he has signed an IL 372 agreement acknowledging the "personal and identifiable" patient care provisions). Five carriers draw random samples, from 6 percent to 50 percent, of all claims submitted under the names of certain teaching physicians from particular teaching hospitals.

The great majority of carriers draw random samples of all beneficiary claims submitted during specified time intervals from designated teaching hospitals. Sampling may be by medical service, as done by three carriers, or hospital-wide. Carriers may sample 20 to 75 claims every three months, audit every fifth claim, or draw 20 percent of all claims submitted every three months. Only two carriers stated that the number of claims drawn is statistically determined. Each formulates its own sampling method, and the number of the claims sampled varies considerably from carrier to carrier.

APPROACHES TO IMPROVED IL 372 IMPLEMENTATION

Most carriers do not view IL 372 implementation as a high priority activity. Responsibility for implementation often rests with utilization review or quality control staff who are concerned primarily about utilization practices Although the Bureau of Health Insurance has issued general directives concerning IL 372, individual carriers have wide latitude in determining which teaching physicians or teaching hospitals are audited and in stipulating medical record documentation requirements. As a result, some hospitals complain that their carriers are far more stringent than carriers in other areas. Infrequent follow-up by regional BHI offices and the lack of communication among carriers contributes to the problem of uneven administration.

Communication among carriers can help make administration more uniform. One carrier, regarded by area hospitals as very stringent in its enforcement of IL 372, modified its documentation criteria as a result of a meeting with several other carriers. The carrier eased its rules requiring physician entries in progress notes from every three days to once a week. Another carrier tightened its practices as a result of the same meeting.

Exchange of information can also spread successful carrier administration practices among all carriers. For example, one carrier acquaints each new teaching physician with the IL 372 requirements by auditing all claims submitted under a new physician's name during his first six months in the area and clarifying documentation criteria. Payments are made during this initial period regardless of the outcome of the audit. Following this period, there is strict enforcement. The carrier reports better audit results in teaching hospitals where the physicians are fully informed of documentation requirements. A similar education program for chiefs of service is being conducted by one carrier in some small teaching hospitals in which the staff are uninformed about program requirements.

* * *

FINDINGS

All carriers do not maintain comparable information on teaching physicians and teaching hospitals.

There is little exchange of information among intermediaries and carriers.

Carriers do not select teaching physicians, teaching hospitals, or beneficiary claims for IL 372 audit by a uniform method.

Carrier medical record requirements for documentation establishing the attending physician relationship vary significantly. Thirty-nine percent of the carriers require either inadequate documentation or conduct no medical record review.

REFERENCES

Chapter 5

1
Bureau of Health Insurance - Intermediary Letter 372, April 1969, "Part B Payments for Services of Supervising Physicians in a Teaching Setting," U.S. Department of Health, Education, and Welfare, Social Security Administration, Washington, D.C.

2
Bureau of Health Insurance - Part B Intermediary Letter No. 70-22, June 1970, "Scope of Detailed Implementation of Intermediary Letter No. 372," U.S. Department of Health, Education, and Welfare, Social Security Administration, Washington, D.C.

Chapter 6

ANALYSIS OF METHODS OF PAYMENT

The first charge Congress set forth in the Social Security Amendments of 1973, Public Law 93-233, Section 15c requested a study of:

> Appropriate and equitable methods of reimbursement for physicians' services, under Titles XVIII and XIX of the Social Security Act, in hospitals which have approved teaching programs.

This chapter describes six methods of payment for professional services of teaching physicians in teaching hospitals. Included is an analysis of effects of changes in the method of payment for these services on: teaching physician compensation, institutional organization and financial support, graduate medical education, and organization of patient care. Analysis is based on the findings of field studies in 81 non-federal teaching hospitals and 17 medical schools (described in Chapters 1-4, Part II, of this report). The effects are evaluated within the context of the congressional concerns which led to this study. Discussed are trade-offs among the interests of the program beneficiary, the teaching physician, the institutional provider, and the federal health insurance program.

METHODS OF PAYMENT FOR TEACHING PHYSICIAN SERVICES

The six payment methods identified for analysis can be divided into two general groups: charge and cost. Under a charge method, the physician (individual, group, or organization) determines the value of his professional services and attempts to collect that amount from his patients. The individual physician sets the level of his charges even though the actual amount he receives may be modified by the third party payor. The charge concept also can be the basis for negotiated contracts between physicians and payors covering the provision of services to patient groups whether on a prepaid or service unit basis.

In contrast, a cost method of payment is based on a formal relationship between an individual physician and an organization which employs him and which can determine the cost of his services to the organization. Except for negotiating his compensation arrangement with the organization, the physician is removed from any determination of the value of his services and the amount the organization will be reimbursed for them.

The regulations implementing a given payment method determine the effects the payment method will have on the beneficiary, the teaching physician, the institutional provider, and the federal health insurance programs. Thus, it was necessary to limit this analysis to payment methods for which there are existing or proposed regulations or for which existing regulation could be adapted. Almost any payment method can accommodate either prepayment or post-payment for physician services (Appendix A).

The charge-based methods of payment include:

Conventional fee is the traditional method by which physicians are paid for professional services to Medicare beneficiaries if there is no simultaneous teaching. The physician bills his charges to the patient or the carrier. If the carrier determines that the charge is "usual and customary and within the prevailing charge levels, payment is made. It is assumed that the physician, himself, provided the services to the beneficiary.

Intermediary Letter 372 (IL 372), a modification of the conventional fee payment method, is designed for the case in which a teaching physician or house officer under the supervision of a teaching physician may provide professional services to the patient. The teaching physician actually bills the charge to the patient or carrier. IL 372 describes the condition under which professional services qualify as "personal and identifiable services" to the patient or "personal and identifiable supervision" by the teaching physician of the house officer, who provides services to the patient. This is the current guideline for determining if payment may be made to teaching physicians for professional services to Medicare beneficiaries.

Section 227 fee as proposed tightens the IL 372 criteria for eligibility for fee payment, and requires a pre-admission relationship between the physician and patient. Presumptive tests based on patient liability are established for determining in which hospitals or hospital settings physicians can automatically be paid on a fee basis. If hospitals or physicians fail to meet these tests, hospitals can elect to be paid on a cost basis fo professional services to Medicare beneficiaries.

The *unified* payment method allows for payment on a charge basis for professional services of house officers and teaching physicians in teaching hospitals. Payment is made for services rendered regardless of whether they are delivered by a teaching physician or a house officer. The house officers are employees of a physician organization which receives and controls all professional service revenues, compensates its members, and includes many specialty and subspecialty services. Under the pure form of this payment method, all house officers and teaching physicians would be supported by professional service revenues.

The lump sum payment method is negotiated payment for professional services to a group. The negotiated agreement establishes the services to be provided, the amount of payment, who will provide the services, and describes the patient group without necessarily specifying the population of the group or the services to be provided its members. It permits prospective payment for professional services and negotiation of the conditions which must be met in the provision of care.

The cost-based method of payment is currently in effect under regulations implementing Section 15, P.L. 93-233. This cost method of payment is the same as that which was permitted under the suspended Section 227, P.L. 92-603. Under this method of payment, hospitals can be reimbursed at reasonable cost for direct physician services to Medicare beneficiaries, provided that all physicians who render services in the hospital elect to be paid this way and agree not to bill charges.

INFLUENCES ON THE EFFECT OF CHANGES IN METHOD OF PAYMENT

Receipt and Control of Professional Service Revenues

Control of professional services revenues is a central element of the arrangement between a teaching physician and the hospital or medical school. In some cases, all physicians are hospital employees and revenues from professional services are part of the hospital's general revenues. In other situations, each physician controls the collection and expenditure of his earnings from patient care. There are many variations of these arrangements, but how professional service revenues are received and controlled influences the activities and compensation of teaching physicians, and the expenditure of revenues over the amount used for compensation. Changes in the method of payment would have an initial effect on these compensation arrangements; any accommodation to the changes would affect teaching physician compensation and activities, institutional organization and financial support, graduate medical education, and the organization of patient care.

Professional service revenues are handled six different ways in the 81 non-federal sample hospitals. Some hospitals receive and control professional service revenues whether they are paid on a cost or charge basis. Faculty or hospital practice plans may receive and control professional service revenues at one of three levels: the medical school, the department, or the hospital (by service or for patient groups based on source of payment). In many hospitals, physicians independently receive and control professional service revenues.

The *hospital on cost* has a group of physicians under contract or in its employ and the allowable costs associated with their patient care activities are paid to the hospital. The hospital controls the expenditure of its revenues. Reimbursement for a physician's direct patient services is based a contract for patient care services between physician and hospital. Sixtee hospitals in the sample handle all or part of professional service revenues this way.

The *hospital on charges* has a group of physicians working under its auspices and the hospital bills, collects, and expends the revenues from professional services rendered by the physician group. Decisions about expenditures of professional service revenues are made within the context of the hospital's expenses and priorities because the revenues become a part of general institutional revenues. Any change in the payment method for professional services will affect the hospital's revenues. Five hospitals in the sample handle revenues from professional services this way.

Members of the *medical school plan* are the clinical faculty whose professional service revenues are collected and expended under the auspices of the medical school. The plan is schoolwide in its membership, control, and expenditures of professional service revenues. Since medical school emphasi is on education and research, the potential effects of a change in payment method would be different from arrangements in which the hospital controls the revenues. Uses of the revenues include support of faculty salaries and other institutional activities such as basic science and graduate medical education. Nine hospitals in the sample have this type of arrangement.

The *department plan* gives control of the collection and expenditures of professional service revenues to a medical school clinical department. It is distinguished from the schoolwide plan by its departmental, and therefore, specialty focus. Like the medical school plan, expenditures of the clinical department plan include priorities of education and research in addition to patient care. Control by the clinical department means there is less likelihood that expenditures will be made for graduate programs in other specialties and the emphasis on school support will be less than under the schoolwide plan. Seven of the sample hospitals have this kind of plan.

The membership of the *hospital plan* is the hospital medical staff. Professional service revenues are collected and expended under the auspices of the hospital. It is different from hospitals on cost and hospitals on charges because its revenues and expenditures are independent from the general revenues of the hospital. Any payment method for professional services applied to this plan will affect the entire medical staff of a hospital. There are four hospitals in the sample with this type of plan.

In the conventional pattern of independent private practice, a *physician (or a group)* provides the professional service, generates the bill, collects the revenue, and expends it, retaining full control of each function. Any association of physicians with institutions is voluntary and focuses on activities rather than fiscal ties. Expenditures are not under the control of an institution or even influenced by its general goals. Priorities for the use of professional time are set on the basis of individual commitment to patient care, education, and research. Individual physicians independently control professional fee revenues in 46 of the 81 non-federal hospitals in the sample.

Hospital Patient Care Type*

The effects of changes in the method of paying teaching physicians on the revenue amounts and the conditions under which payment is made are influenced, in part, by the patient mix (by ability to pay) and where different types of patients seek physician services (an institution or a private physician). Hospital patient care type describes whether the hospital classified patients as private or non-private.

In 23 sample hospitals, almost all patients are classified as "private." In 20 sample hospitals, almost all patients are classified as "non-private." The remaining 38 sample hospitals have both private and non-private patients.

Hospital Classification**

Hospital classification describes the ownership and extent of educational association between teaching hospitals and medical schools. Both are important elements in understanding the potential effect of changes in the method of payment on the uses of professional service revenues. Hospital ownership may determine whether the uses of professional service revenues are decided by the physicians, the hospital, or a state or local government. The closer the educational association, the more likely that professional patient care revenues will be used to support faculty and other medical school activities.

Table 1 shows the 81 non-federal sample hospitals according to these three factors: arrangements for receipt and control of professional service revenues, hospital patient care type, and hospital ownership and degree of medical school association. Seven hospitals fit more than one arrangement and were entered into the table twice. For example, one of the private independent hospitals has both "physician" and "hospital on cost." The former operates under IL 372 and receives revenues for the care of private patients (75 percent). The latter receives cost reimbursement for Medicare and Medicaid patients (25 percent) who cannot pay coinsurance and deductibles.

---

*See Chapter 3, Part II for a full discussion.

**See Chapter 1, Part II for a full discussion.

TABLE 1. HOSPITAL PATIENT CARE TYPE, OWNERSHIP, AND MEDICAL SCHOOL ASSOCIATION BY THE ARRANGEMENT FOR HANDLING PROFESSIONAL SERVICE REVENUES

Arrangement	Private Principal	State Principal	Local Principal	Private Grad. Assoc.	Local Grad. Assoc.	Private Undergrad. Assoc.	Private Ind.
Type I private patients							
Hospital on cost							
Hospital on charges						2	
Hospital plan							
Medical school plan	1						
Department plan	2						
Physician	1			8		6	3
Type II non-private patients							
Hospital on cost		3 a/	2 a/		6 a/		1
Hospital on charges		1	1 a/		1		
Hospital plan					3 a/		
Medical school plan		3 a/					
Department plan							
Physician			2				
Type III private and non-private patients							
Hospital on cost		1		1			2 a/
Hospital on charges				1			
Hospital plan				1 a/			
Medical school plan		5					
Department plan	4			1 a/			
Physician	1	1		14 a/	2	2	6 a/

Source: Institute of Medicine field data.

a/Seven of the 81 non-federal sample hospitals have more than one category of arrangement for handling professional service revenues.

STRUCTURAL EFFECTS OF CHANGES IN METHOD OF PAYMENT

Alterations in payment methods can have both structural and financial effects. Structural effects are found primarily in the areas of teaching physician compensation, institutional organization and financial support, graduate medical education, and patient care organization. The structural effects under the six payment methods and the financial effects under charge and cost methods of payment are discussed.

In the following analysis of the structural effects in these areas that could be expected to result from implementing each of these payment methods, it was assumed that each payment method would be applied across all teaching hospitals. The minor and neutral effects of each payment method are discussed briefly and then the discussion of major effects is organized around the respective arrangements for receipt and control of professional service revenues.

Conventional Fee Payment Method

No change would be expected except in the hospitals already on cost.* In their case, a physician employment agreement with the hospital would no longer be required for payment to be made for professional services. Thus, hospital control of professional service revenues could be changed to any other arrangement for collecting and expending those revenues. Cessation of cost reimbursement for all physician activities in the hospital would require meeting the criteria for payment for direct patient care services on a charge basis and specifying the administrative, supervisory, and teaching activities of physicians eligible for institutional cost reimbursement. In the hospitals required to change from cost to fee payment, there would be an incentive for teaching physicians to provide patient care services as a source of their income.

The major effects on the hospital on cost would be in the area of institutional organization and financial support.

- Since physicians would not be required to be employees of the hospital, they could establish other arrangements for the collection and expenditure of professional service revenues; the hospital would not have access to professional service revenues.

- If the physicians did complete arrangements under which professional service revenues no longer came to the hospital, total hospital revenues would decrease. If the physicians admitted some of their patients to other hospitals, the decrease in total hospital revenues might exceed the amount formerly received as reimbursement for physician services.

---

*This is a theoretical discussion since it is unlikely that hospitals on cost would ever be required to change to a charge-based method of payment.

Cost Payment Method

The hospital on cost would not be affected by this payment method. In the hospital on charge, all physicians providing services to beneficiaries would be required to become employees of the hospital or otherwise become part of the hospital's reimbursable costs. All teaching physician and house officer activities would be reimbursable to the hospital; therefore, the hospital's influence over those activities and graduate medical education programs would be extended. Major effects of this payment method would be:

- Hospital on charge

  Patient care organization
  - The cost payment method would remove any requirement or incentive for the physicians to provide personal and identifiable services.

- Hospital/medical school/department plans

  Teaching physician compensation
  - The plan or its individual members would have to enter into an employment or contractual agreement with the hospital.
  - Private teaching physicians would be precluded from generating fees in the hospital since physician services would be reimbursed as hospital costs. Therefore, some physicians might elect not to work in this kind of teaching setting.
  - Control over professional service revenues would shift from the plan to the hospital.

  Institutional organization and financial support
  - The hospital would receive all professional service revenues on a cost reimbursement basis.
  - In institutions where faculty are supported in some part by professional fee revenues, a reduction in revenues could result in the need to identify replacement revenue, reduce faculty, reduce faculty time in house officer supervision, or reduce the number of house officer positions.

  Graduate medical education
  - The joint teaching and patient care activities of the private physician formerly supported from fee revenues become a hospital cost.
  - As the only entity reimbursable for costs of house officers and teaching physicians, the hospital would gain influence in program decision-making.

- Physician

  Teaching physician compensation
  - Under a cost method of payment, a physician could not participate in the care of program beneficiaries unless he entered into an employment or contractual agreement with a teaching hospital.

Institutional organization and financial support

- Since all physicians must enter into an employment or contractual agreement with the hospital, volunteer teaching physicians would be precluded from bringing patients to a teaching hospital, thereby affecting hospital revenues from patient care.

Graduate medical education

- Teaching and patient care services now provided by volunteer physicians supporting themselves out of fee income would be lost and, if essential, would be replaced by physician employees.

Patient care organization

- There would be no incentive in the cost payment method for the physician to maintain present standards of personal and identifiable care.
- Physicians would have no requirement or monetary incentive to engage in patient care services to program beneficiaries or generally to maintain or increase productivity in patient care.

IL 372 Fee Payment Method

This is the payment method in effect in 1975; applying it across all teaching hospitals would have no effects except in the hospitals on cost in which there would be major effects.*

- Hospital on cost

Teaching physician compensation

- The physician role test could not be met by the hospital on cost. This would result in the withholding of professional patient care service payments.

Institutional organization and financial support

- There would be no incentive to change the hospital organization to capture the fee revenues since the physician role test could not be met.
- Because professional service revenues would cease, the hospital would have to find other sources of financial support, cut back services, cut back activities, or do all of these.

Section 227 Payment Method

The major effects under this payment method would be directed at hospitals or individual physicians unable to meet the presumptive tests for determining that teaching physicians can be paid on a fee basis for patient services in an entire hospital or hospital setting. If the physician role and the patient liability tests could not be met, two courses would be open:

---

*This is a theoretical discussion since it is unlikely that hospitals on cost would ever be required to change to a charge-based method of payment.

the institution and physicians could elect not to be paid for services to program beneficiaries, or they could elect to be paid on a cost basis. For analytic purposes, the major effects of the latter course of action are presented below. The hospitals on cost would be unaffected by the cost provisions since they have elected to function under them.

- Hospital on charges

  Teaching physician compensation
  - An employee or contractual agreement between the hospital and physician would be required.
  - The hospital would receive professional service payments as reimbursable costs.
  - The voluntary teaching physician would be precluded from payment for the care of program beneficiaries.

  Institutional organization and financial support
  - The hospital would be the recipient of payments for professional services on a cost basis.
  - Professional service revenues would become part of the hospital's general revenues.

  Graduate medical education
  - As the only entity reimbursable for house officer and teaching physician costs, the hospital would have more influence on decisions made about graduate medical education programs.
  - All physician activities would be cost reimbursable. There would be no incentive to change the distribution of physician activity in teaching or patient care.

  Patient care organization
  - There would be no incentive or requirement to maintain present standards of personal and identifiable care.

- Hospital/medical school/department plan

  Teaching physician compensation
  - The plan or the individual members of the plan must enter into an employment or contractual agreement with a hospital.
  - The volunteer physician would be discouraged from practicing and teaching in the hospital since no fee could be charged for services to program beneficiaries.
  - Control of professional service revenues would shift from the plan to the hospital.

  Institutional organization and financial support
  - Professional service would become a hospital cost and would preclude the existence of any other arrangement for the collection and expenditure of professional service revenues. The hospital would be the recipient of the professional service revenues on a cost basis.

Graduate medical education

- All activities of teaching physicians would be supported by cost reimbursement to the hospital.
- The hospital would be the only entity which could receive cost reimbursement for house officer and teaching physician services. This would increase the hospital's influence on the decisions made about graduate medical education programs.
- Teaching activities of teaching physicians might decrease as their compensation source shifted to the hospital with its service orientation.

Patient care organization

- For plans where the patient liability test or physician role test, or both, could not be met, Section 227 would reduce incentives to provide personal and identifiable services.

Physicians

Teaching physician compensation

- The private physician would have to enter into an employment or contractual agreement with a hospital.
- Control of professional service revenues would shift from the private physician to the hospital.

Institutional organization and financial support

- Physicians would have to become a hospital cost for reimbursement purposes.
- Professional service revenues would become part of general hospital revenues.
- Since the hospital would be the recipient of professional service revenues on a cost reimbursement basis, other arrangements for the collection and expenditure of professional service revenues would be precluded.

Graduate medical education

- As the only entity reimbursable for house officer and teaching physician costs, the hospital's influence on decisions about graduate medical education programs would increase.
- The payment method would discourage volunteer physician participation in teaching and patient care activities.

Patient care organization

- Since the option of cost payment would exist even if the patient liability test was not met, Section 227 would provide no incentive to maintain existing standards of personal and identifiable care.

Unified Payment Method

This payment method is based on the organization of teaching physicians and house officers, who as providers of physician services in the hospital, would receive and control professional service revenues. All present arrangements for the collection and expenditure of professional service revenues would be affected if this payment method were applied to all teaching hospitals. The department plan and physician are precluded from participation in this payment method because they are not hospital-wide physician organizations. Since the physicians would establish their own organization, there would be minor organizational effects in hospitals on charges and on costs. All patient care services would be billable regardless of whether delivered by a house officer or a teaching physician. The physician organization would have to assure the government program that the services were being provided by qualified physicians. The major effects on all other arrangements are described below.

- Hospital on cost

  Graduate medical education
  - House officer expenses would be covered by professional service revenues of the physician organization.
  - The relationship of the hospital and medical school faculty would change since the house officer and his financial support would shift from the hospital to the physician organization.
  - The unified payment method would provide an incentive to shift the activities of the teaching physician toward patient care.

- Hospital on charges

  Graduate medical education
  - All activities of teaching physicians would be paid for out of professional service revenues.
  - House officer expenses would be covered by the professional service revenues of the physician organization.
  - The relationship between the hospital and medical school faculty would change since house officer financial support would shift from the hospital to the physician organization.
  - The unified payment method would offer no incentive to change the teaching activities of fully qualified physicians, but payment for direct patient care provided by either the teaching physician or the house officer would be legitimate, thus providing an incentive for the hospital on charges to give house officers increased responsibilities.

- Hospital/medical school/department plan

Institutional organization and financial support

- The unified payment method would require the hospital or medical school plan to be the sole source of professional services in the hospital. There could be no department plan under this payment method.
- The physician organization would indirectly support the institution under whose auspices the physicians and house officers serve by compensating all teaching physicians and all house officers.

Graduate medical education
- Activities of teaching physicians and house officer expenses would be paid for by income to the physician organization.
- The hospital relationship to the medical school would change dramatically since house officer support would shift from the hospital to the medical schoolwide plan.
- There would be no incentive for the members of the medical school plan (physician organization) to change the mix of teaching and patient care activities.

- Physician

Teaching physician compensation
- The private teaching physician would enter into a fiscal agreement with a physician organization.
- The private teaching physician as an individual practitioner would be precluded.
- Control over professional service revenues would shift from the individual physician to the physician organization.

Institutional organization and financial support
- Private physicians would have to organize into a fiscal and service entity which would become the sole source of professional services to the hospital.
- The physician organization would compensate all physicians, including house officers, from its patient charges; thus there is indirect support of the institutions in which the teaching physicians and house officers serve.

Graduate medical education
- Activities of teaching physicians and house officer expenses would be covered from patient care income of the physician organization.
- The physician organization would take responsibility for graduate medical education program decisions.
- The unified payment method would provide an incentive for the physician to shift his activities toward patient care.

Patient care organization
- Professional services would be provided by a team of qualified physicians.

Lump Sum Payment Method

There would be some effect on all arrangements for the collection and expenditure of professional service revenues if this payment method were applied to all teaching hospitals. Physician compensation would come from the institution, individual, or organization which would be the recipient of payment and would control professional service revenues. Since there would be a negotiated agreement, the payment for services would be specified in advance and the government programs would be assured that the service provided to beneficiaries was what had been purchased. Unless the agreement specified that personal and identifiable services were to be provided, there would be no incentive or requirement to provide them.

- Hospital on cost

  Teaching physician compensation
  - Patient care services to beneficiaries would be on a charge rather than cost basis.

  Patient care organization
  - Conditions for the provision of patient care would be specified in the negotiated agreement, thus giving the government programs more influence than under the cost method.

- Hospital on charges

  Teaching physician compensation
  - In hospitals on charges, the fee payment to the hospital for physicians services would be replaced by a negotiated sum paid to the same institutional recipient.

  Patient care organization
  - The lump sum method would offer no incentive to provide personal and identifiable services unless that is part of the negotiated agreement.

- Hospital/medical school/department plan

  Teaching physician compensation
  - The plan could receive payments from an institutional recipient of the lump sum or be the recipient of the lump sum.
  - With the plan as payment recipient, private physicians would be precluded from payment.
  - Fee payment for physician services would be replaced by a negotiated sum.

Institutional organization and financial support

- The plan would remain intact as the recipient of the professional service revenues.

Graduate medical education

- Support of all activities of teaching physicians would become the responsibility of the recipient of the lump sum payment.
- Teaching activities of teaching physicians would be emphasized since control over physician activities would shift to the plan and its educational orientation.

Patient care organization

- Unless specified as part of the negotiated agreement, the payment method would provide no incentive to maintain present standards of personal and identifiable patient care.

- Physician

Institutional organization and financial support

- If the hospital were the institutional recipient of the lump sum payment, it would have to organize private physicians to provide the necessary professional services.
- If the private physician were the recipient of the lump sum payment, no organizational change would be necessary.
- Institutional support would increase if the institution were to become the recipient of the lump sum payment.

Graduate medical education

- Support of the activities of teaching physicians would shift to the hospital if the hospital were the recipient of the lump sum payment. House officers' costs would be reimbursable to the hospital.
- If the hospital were the institutional recipient of the lump sum payment, it would become the only entity reimbursable for the costs of house officers and paid for the services of teaching physicians and, therefore, would gain influence in decisions made about programs. If the private physician were the recipient of the lump sum payment, there would be no change in the way decisions are made.

Patient care organization

- Unless otherwise specified, the lump sum payment method would provide no incentive to maintain present standards of personal and identifiable care.

FINANCIAL EFFECTS OF CHARGE AND COST PAYMENT METHODS

As has been described above, the possible structural effects of changes in payment methods are important and could cause fundamental reorganization of teaching physicians and teaching hospitals. However, much of the initial reaction to Section 227 focused on the dollar differences that would result from payment under a cost method as opposed to payment under a fee method. The question of whether the cost method would yield substantial savings to the program is also important.

These dollar differences are difficult to compute for several reasons. Fee revenue data are often unobtainable, and were available in total and by payor for only a small number of the 81 non-federal hospitals studied. Cost data were obtained from the Medicare cost reports. Depending on the accounting practices used in each hospital, however, the cost data may not be comparable or easily assembled into a figure that represents accurately the cost of teaching physician services provided to Medicare beneficiaries. It is difficult, too, to compare fee revenue data from one part of the country to another or even within states since carriers have different determinations of usual and customary charges and prevailing fee screens.

In the following analysis, the costs of physician services include factors which approximate the costs of practice for physicians outside institutional settings. This permits comparison of the costs to the Medicare program under different payment methods and increases the accuracy of the dollar difference computations presented for the institutions with available data.

The effects on dollar flows of changing from cost to charge payment, or vice versa, for patient care services are presented below. Only the two general cases are presented since five of the payment methods analyzed are charge-based and the differences between them relate either to the conditions under which teaching physicians can be paid on a fee-for-service basis (fee, IL 372, and Section 227) or to the nature of the structural arrangements for paying them (unified and lump sum). The sixth payment method is cost reimbursement. Determining the revenue differences among the five charge-based methods with any reasonable degree of precision is no possible and was not pursued. The method and results are presented for hospitals on cost, medical school practice plans, and hospitals on charges.

Hospitals on Cost

Table 2 shows the estimated revenue change for seven hospitals currently receiving cost reimbursement for physician services, should they be paid for these services on a fee-for-service basis. Current cost reimbursement must be estimated since physician costs are not usually separated from oth costs in hospital cost reports. The estimated physician cost reimbursement for each hospital was derived by computing the percentage of total costs charged to Medicare and then multiplying that percentage times the total physician compensation (salaries and fringes) paid by the hospital. Thus, it was assumed that Medicare bears the same share of physician salary and fringe costs as it does of all other costs. For each hospital, an amount equal to 50 percent of physician costs was added to physician costs. This sum was an estimate of the total costs of providing professional services to patients. The amount of 50 percent derived from the Institute of Medicine's study of the costs of medical education. The potential professional fee revenues were estimated by multiplying an average Medicare fee per "patient unit" (equal to inpatient days plus outpatient visit days) by the total Medicare patient units for the hospital. The fee per unit used was $23, the average Medicare fee for physician services provided in a hospital setting in the United States.

Total professional fee revenues would be several times the estimated cost reimbursement for some of the hospitals, but would be less than cost for others. The hospitals for which fees greatly exceed costs are hospitals in which most patient care is provided by house officers, which allows teaching physician costs to be very low.

TABLE 2. ESTIMATED MEDICARE COST REIMBURSEMENT FOR PHYSICIAN PROFESSIONAL SERVICES AND POTENTIAL REVENUES UNDER FEE-FOR-SERVICE PAYMENT, FY 1974, HOSPITALS ON COST

Hospital	Estimated cost reimbursement for physician services, Title 18 (thousands)	Potential revenues under fee-for-service payment (thousands)	Percentage change in Revenues
A5	384	594,729	+ 55
D4	65	104	+ 61
D5	21	146	+ 600
B2	362	239	- 34
G3	658	590	- 10
AA a/	16,956	278,507	+1,014
S5	376	345	+1,543

Source: Institute of Medicine field data.

a/This hospital has two departments. One department currently bills fee-for-service; the above computations apply only to the cost department.

Medical School Practice Plans

Table 3 shows current Medicare revenues to faculty practice plans in six medical schools where all faculty fees go into the plan. Estimated revenues are shown for each school under two methods of computing cost. Cost computation 1 covers only physician salaries and fringe benefits (estimated at 15 percent) using the formula: professional service cost equals total physician compensation times the proportion of physician time spent in patient care and related activities. Patient care time was obtained from the activities analysis and includes pure patient care, half of joint teaching and patient care, patient administration, and an allocated portion of professional development and general administration. In these institutions, the proportion of time in these activities varied from one-third to almost one-half.

Computation 2 includes not only physician costs computed as above, but also some other costs associated with the provision of professional services to patients such as billing and collection, office space for practice, and insurance. Data from the Institute of Medicine study of the costs of medical education show that, on average, private medical school clinical departments spend about one dollar for support staff, supplies, equipment, and space for every dollar of faculty compensation in support of their patient care program. Public school clinical departments spend about fifty cents per dollar. Computation 2 shows the potential revenues if costs are computed by applying these rates to the physician costs of computation 1.

Depending on the availability of data, Medicare's share of costs in each case was calculated either on the ratio of Medicare patient units to total patient units in the principal teaching hospital, or on the ratio of Medicare fee revenues to total fee revenues for the practice plan.

Most of these schools would lose substantial revenues under computation 1, although one would gain 30 percent in professional services revenues. Under computation 2, revenues to most of the schools would increase.

Hospital on Charges

The method of estimating costs for these institutions is the same as for medical school practice plans. Table 4 shows the results for six sample hospitals, using cost computations 1 and 2. Under both computations, revenues to three of the hospitals would decrease and to others, they would increase. In the latter hospitals only a few patients are billed fees.

Costs to the Medicare Program

The difference in costs to the Medicare program under the cost and charge methods of payment is best stated as a percentage change relative to the

Table 3. MEDICARE FEE REVENUES AND ESTIMATED REVENUES UNDER TWO COST COMPUTATIONS, MEDICAL SCHOOL PLANS, FY 1974

School	Medicare fee revenues		Cost computation 1 a/		Cost computation 2 a/	
	Amount ($ thousands)	Percent total fee revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues
A (A1)	948	12	825	-13	1,235	+30
B (B1,B6)	864	20	595	-31	897	+ 4
C (C1)	821	14	471	-43	942	+15
J (J1, J3) b/	1,727 c/	20	1,227	-30	2,455	+42
N (N1)	557	10	593	+ 6	890	+60
P (P1)	777	14	1,009	+30	1,514	+95

Source: Institute of Medicine field data.

Note: Dollar amounts rounded to nearest $1,000; percentages rounded to nearest percent.

a/Cost computation 1 covers physician salary and fringe benefit (15 percent) costs only; cost computation 2 in addition includes other costs in support of patient care. See text for more detailed description of computation.

b/J has departmental practice plans; all other institutions have school-wide practice plans.

c/Estimate.

TABLE 4. MEDICARE FEE REVENUES AND ESTIMATED REVENUES UNDER TWO COST COMPUTATIONS, HOSPITALS ON CHARGES, FY 1974

Hospital	Medicare fee revenues		Cost computation 1 a/		Cost computation 2 a/	
	Amount ($ thousands)	Percent total fee revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues	Estimated revenues ($ thousands)	Estimated percent change in revenues
G2	5,190	21	2,087	- 60	3,131	- 40
K6	943	32	400	- 57	599	- 36
G1	955	18	382	- 60	573	- 40
A2	150	28	168	+ 12	253	+ 68
J5	136	30	185	+ 36	278	+104
A3	49	18	225	+359	338	+596

Source: Institute of Medicine field data.

a/See note a/, Table 3.

amounts paid on an allowable charge basis in Fiscal Year 1974 to the sample institutions for which data were available. Under the cost method, more hospitals would gain than lose professional service revenues and the increased cost to the Medicare program is estimated to be two percent greater than the amount paid under the charge method in Fiscal Year 1974. These computations are based on Medicare paying full costs, not only salaries and fringe benefits, for physician services. Since it is unlikely that institutions currently on cost would shift to a charge method of payment, there would be no change in program costs for them.

These comparisons between the program costs for physician services under cost and charge are separate from any consideration of whether it is better public policy to pay for the costs of those services from Part A, paid by contributions of employers and employees, or from Part B, supported by premium payments of beneficiaries and federal general revenues. Although important, this question does not affect the comparison of the costs to the Medicare program of charge or cost payment for the patient care services of teaching physicians and was not addressed in this study.

EVALUATION OF METHODS OF PAYMENT

As the description of the effects of the payment methods shows, there is a marked similarity of the type of effect across the different arrangements for the receipt and control of professional service revenues, the hospital patient care type, and the hospital ownership and educational association categories. However, there are differences in the degree of these effects.

The charge-based methods of payment -- conventional fee, IL 372, unified, and even lump sum, as a special case -- would have little or no adverse effects on the sample hospitals and medical schools.* The major effects of the unified payment method would be on institutional organization and financial support since house officers would become employees of a physician organization rather than of a hospital. The effects of Section 227 fee are difficult to assess: if all institutions which meet the criteria for payment under IL 372 could meet the criteria proposed under Section 227, the effects would be minimal. However, the field studies showed that few hospitals or physicians could meet the patient liability test and, therefore, payment would be made to the hospital on an allowable cost basis. Under a cost method of payment, several institutions would receive increased professional service revenues; however, a reduction in the amount of patient care provided and directly supervised by teaching physicians could be expected. Institutional organization and financial support would be affected since teaching physicians would be required to enter into direct employment or contractual agreements with hospitals.

---

*Excluding, of course, the unlikely possibility that any charge-based method of payment would be applied to the hospitals on cost.

To assess the appropriateness and equitability of methods of payment for the simultaneous provision of patient care services and teaching activities by teaching physicians, the steering committee developed a series of principles for evaluation.* The principles address the concerns of Congress and the interests of the beneficiaries, the teaching physicians, the institutional providers, and the government programs (Medicare and Medicaid) with respect to the anticipated effects of changes in the method of payment.

The congressional concerns leading to this study were summarized in the Senate report accompanying the 1972 Social Security Amendments. Section 227 of Public Law 92-603 was an attempt by Congress to solve these problems.

> It has proved to be difficult to achieve effective and uniform application of present policies in the large number of widely varying teaching settings. In some cases, charges have been billed and paid for services rendered in teaching hospitals which clearly did not involve any degree of teaching physician participation. In some cases charges were billed for the services that residents and interns rendered in every case where a supervising physician had overall responsibility for their actions, even though he may not actually have become involved in the patient's care. In other cases, charges for covered services were billed in amounts that were out of all proportion to the covered service or the charges billed to other patients. 1/

Since the principles represent such diverse and sometimes conflicting interests, no payment method can fully satisfy all of them and, ultimately, there must be trade-offs and compromises based on value judgments.

• Principles Applicable to the Teaching Physician

Principle P1. Government payment methods should be appropriate for the way in which care is delivered. If teaching physicians provide care in a manner similar to non-teaching physicians, the payment for their patient care services should be similar. Modifications in the payment methods should be made that are appropriate to other modes of delivering medical care in teaching settings; for example, the physician team approach.

Principle P2. Government payment methods should be neutral whether teaching physicians are self-employed or are employed by a medical school, hospital,

---

Some of the principles are adopted from those developed by the Health Insurance Benefits Advisory Council (HIBAC in its July 1973, report on methods of physician payment under Medicare. Health Insurance Benefits Advisory Council. A Report on the Results of the Study of Methods of Reimbursement for Physicians' Services Under Medicare, Washington, D.C., DHEW, SSA, July 1973, p. 35 (SSA Pub. No. 92-73).

or other organization. The amount of payment for patient care services should be determined without regard to the employment status of the teaching physician.

Principle P3. Government payment methods should be neutral with regard to the use of patient care revenues by teaching physicians. The government programs should pay fairly and equitably for the services rendered, and having made such payment, their interest in the use of the payment should cease.

- Principles Applicable to the Beneficiary

Principle B1. Government payment methods for patient care services of teaching physicians should not create or maintain classes of patients based on the sources of payment for the services. Methods of payment should not aggravate differences in care by providing incentives for creating or maintaining private and non-private hospital settings to which patients are assigned on the basis of non-medical criteria.

Principle B2. Government payment methods for patient care services of teaching physicians should not discourage physician and institutional provider participation in the programs. Any changes in the payment method should not discourage teaching physicians from maintaining or increasing the number of patients in teaching settings or from maintaining or increasing their commitment to teaching and patient care activities.

- Principles Applicable to the Health Insurance Program

Principle M1. Government payment methods should result in reasonable program costs in relation to the services provided. The government should be a prudent buyer of physician services for program beneficiaries, regardless of whether payment is made on the basis of reasonable costs or reasonable charges.

Principle M2. Government payment methods should influence professional judgments toward the provision of medically necessary services in settings appropriate to the medical need of the beneficiary. Payment methods should not influence the physician to treat the beneficiary in an inpatient setting when treatment in an outpatient setting is appropriate to the beneficiary's medical need, and vice versa.

Principle M3. Government payment methods should not influence the physician or the beneficiary to select one medically appropriate setting over another. Given a choice of appropriate settings for the provision of medically necessary services, the payment method should not influence the physician or the beneficiary to select one hospital over another or one outpatient setting over another.

- General Principles

Principle G1. Government payment methods should allow for experimentation and change. Government programs should be allowed to conduct limited experiments with payment methods that offer the possibility of better service to beneficiaries, reduced cost of services, or reduced administrative cost. Government payment methods should not lock graduate medical education and medical care delivery into a mold that is right for a particular time period or for a particular set of institutions.

Principle G2. Government payment methods should be fair and comprehensible to the beneficiary, the physician, the institutional provider, and the program. The payment method should encourage the use of medically necessary services by beneficiaries, encourage physicians and institutional providers to provide medically necessary services to beneficiaries, and assist the program to pay equitably and fairly for medically necessary services to its beneficiaries without excessive administrative costs.

Evaluation of the Payment Methods Against the Principles

The effects of each of the six payment methods were reviewed to determine to what extent the principles were satisfied. Possible modifications of the payment methods under investigation were identified in the course of this review.

Conventional fee, without special conditions, is not an appropriate method of payment for the way care is delivered in a teaching setting. It does not recognize simultaneous patient care and teaching activities of teaching physicians. It is neutral to the employment status or employment relationships of teaching physicians and also neutral with regard to the use of professional service revenues. This payment method provides incentives for creating or maintaining different hospital settings to which patients are assigned on the basis of non-medical criteria because there is no provision for paying teaching physicians for patient services provided by house officers under their supervision. This payment method does not discourage physician and institutional provider participation in the care of program beneficiaries. Because the payment method, as it stands, is not appropriate to the teaching setting, it does not result in reasonable program costs in relation to the services provided. The payment method does not influence the physician to select the medically appropriate setting for services to the beneficiary since it encourages the physician to select settings where the service is covered. The payment method is neutral to the selection of medically appropriate settings. The payment method does not allow experimentation and change. Finally, since the conventional fee payment method is inappropriate to the teaching setting, it is not fair to the government programs, and thus, is not fair to the beneficiary, because there is no mechanism for assuring that patient care services are supervised by or provided by the teaching physician.

From the standpoint of the teaching physician and the institutional provider, this method of payment, at best, is suited only to the physician who receives and controls his own professional service revenues derived from patient care provided simultaneously with volunteer teaching. Typical these teaching physicians practice in hospitals owned by voluntary and nonprofit organizations with mostly private patients. Involvement in graduate medical education is limited. From the perspective of the beneficiary and the government programs, this method of payment does nothing to meet the congressional concerns with respect to paying for teaching physician services to beneficiaries, although it is administratively much simpler than other payment methods, except cost.

IL 372 fee sets out conditions under which charges for the direct patient care services of teaching physicians are allowed and, thus, is a modification of conventional fee that attempts to fit it to the teaching setting. Payment under IL 372 is made without regard to the employment situation of teaching physicians and IL 372 does not limit the use of professional service revenues. This payment method does not create or maintain differen hospital settings to which patients are assigned on the basis of non-medic criteria. The IL 372 payment method does not discourage teaching physician and institutional providers from providing care to government program beneficiaries. IL 372 has helped to keep program costs reasonable in relation to the services provided, but the passage of Section 227 was evidence that a higher level of success is desired by Congress. IL 372 influences the physician to choose a setting where the service required by the patient is covered regardless of whether the setting is medically necessary. It does not influence the physician or the beneficiary to select one medically appropriate setting over another. This payment method does not allow for experimentation and change. The administrative difficulties with IL 372, also addressed in Section 227, demonstrate that it is not considered fair by either the government programs, the teaching physicians, or the institutional provider.

From the perspective of the teaching physician and the institutional provider, IL 372 is more an attempt to adapt the teaching setting to the standard Medicare physician payment model than it is an attempt to identif a method of payment that is appropriate to the simultaneous patient care and teaching activities of the teaching setting. IL 372 is met presumptiv by teaching physicians who practice in non-profit voluntary hospitals with predominantly private patients. This payment method has been adapted to by teaching physicians in most principal teaching hospitals, whether publi or non-profit voluntary, where there is a mix of private and non-private patients. In local government and state hospitals where patients are predominantly non-private, there have been disputes over the degree of documentation required, the adequacy of documentation, and the necessity for documentation for purposes of payment as opposed to documentation for purposes of patient care. Although there is much dissatisfaction with IL 372, it has generally been accepted. From the government programs' perspective, however, IL 372 is unsatisfactory because it does not effectively meet the congressional concerns or the programs' interest in holding costs at a reasonable level in relation to the services provided. Ultimately, if costs are determined to be excessive, beneficiary costs must increase or covered services must be reduced, thus, affecting the beneficiary.

Section 227 is a combination payment method which allows charges to be paid when the conditions of a physician role test and a patient liability test are met and permits the election of cost payment in institutions where they are not met. Section 227 is a further modification of the conventional fee payment method which attempts to fit it to the teaching setting and broadens the presumptive tests in order to ease the administration of the payment method in comparison to IL 372. Payment under Section 227 fee is made without regard to the employment situation of teaching physicians; however, if the conditions are not met, the physician must enter an employment or contractual relationship with the hospital and agree not to bill charges for services rendered to program beneficiaries in that hospital. Section 227 fee does not limit the use of professional service revenues, but if the conditions are not met the professional services are paid on a cost reimbursement basis to the hospital and come under its control. Thus, the professional service revenues are removed from direct control of the physician or the practice plan and placed in the hospital.

Section 227 creates or maintains different hospital settings to which patients are assigned on a basis of non-medical criteria because it permits cost and charge payment for non-private and private patients, respectively, in the same hospital. In hospitals which choose cost reimbursement for physicians' direct patient care services, teaching physicians who do not agree not to bill charges would be prohibited from participating in the program. By offering the cost alternative and requiring it to be used in cases where there was doubt as to whether the physician role and patient liability tests were met, Section 227 was an attempt to hold program costs at a reasonable level in relation to the services provided. Overall program costs under this payment method would probably increase for two reasons: many hospitals have not attempted to collect charge payment but would claim cost reimbursement for physicians' direct patient care services. Shifting the payment method from charge to cost means increased costs to Medicare as the beneficiary no longer would be responsible for paying the coinsurance. The payment method would influence the physician to select settings where the service is covered whether under the cost or charge alternative. Because the beneficiaries' out-of-pocket costs are reduced under the cost alternative they may choose to receive care in settings where physicians are on cost payment.

Section 227 does not explicitly allow for experimentation and change, although legislation permitting reimbursement experiments was included in another section of P.L. 92-603. Questions as to the fairness of Section 22 were raised by the teaching physicians and institutional providers to such a degree that this study was requested by Congress. And this study has raised questions as to whether the method of payment is actually fair to the government programs.

From the standpoint of the teaching physician and institutional provider, Section 227 has great potential for disrupting long-standing arrangements for the receipt and control of professional service revenues. Some of these arrangements involve state and local governments. The payment method also would bring great change in the employment relationships between teaching physicians and hospitals. There is no clear difference in the amount of professional service revenues that would be paid under the cost and charge alternatives; some institutions would lose and some would gain in each case.

From the standpoint of the beneficiaries and the government programs, beneficiaries might be encouraged to seek medical services in cost hospitals because they would have no out-of-pocket costs. The overall cost to the government programs under the cost alternative might exceed that under the charge because of the loss of beneficiary paid coinsurance and the incentiv to claim cost reimbursement in hospitals which previously billed little or nothing in charges. Administrative costs would be high initially, but might level off as more and more physicians met the presumptive tests for charge payment or more hospitals went to the cost method.

The *unified* method of payment was designed to fit the teaching setting in which physicians at various stages of training provide services to a patient under the supervision of a teaching physician. It requires that the teaching physicians and house officers be employed by a physician organization from which they receive their full compensation. Thus, the unified payment method restricts the physician's employment and the use of part of the professional service revenues. Because all physicians' direct patient services are billable and would be paid on an allowable charge basis there is no reason for the hospital to categorize patients. Physicians who are not members of the physician organization would be precluded from participating under this payment method as would physician organizati unable to provide a broad spectrum of specialty and subspecialty services to beneficiaries.

The unified method should result in reasonable program costs for the servi provided since there is no cost reimbursement for house officer support or for the supervisory and teaching services of physicians. Program payment is made for physician direct patient care services to beneficiaries. The payment method influences physicians to provide care in appropriate settin with appropriately qualified physicians. Because the physicians' practice must be limited to one or two hospitals, the payment method is not neutral to the selection of medically appropriate settings. Because all payments or physicians and house officers would be on a charge basis, out-of-ocket costs to beneficiaries would increase and they might choose other hysicians or institutions for care. Only a small number of institutions n the country would qualify for the unified method of payment, thus, in sense, it is an experiment in itself. The unified method is fair and nderstandable to the beneficiary, the teaching physician, the instituional provider, and the government programs.

rom the standpoint of the teaching physician and the institutional proider this payment method requires a fundamental change in house staff ayment method with such payment becoming the responsibility of the physiian organization. It also places the responsibility for assuring that he care is provided by appropriately qualified physicians on the physician rganization rather than on individual physicians. The payment method s designed to fit the teaching setting although several other physician-elated principles are violated.

rom the standpoint of the government programs, the payment method meets he congressional concerns. There is a potential for increased program osts, however, and for this reason careful monitoring of this payment ethod in a small number of institutions would be required until its effects n patient care and program costs are better understood. The unified method ay result in greater out-of-pocket costs to the beneficiary since all hysician services would be paid for on an allowable charge basis requiring ayment of coinsurance and deductibles. In the long run, costs to the rogram may be reduced since there are no costs for house officers or teachng and supervisory services of physicians.

he *lump sum* payment method permits negotiation between the government proram and the teaching physician and the institutional provider. In these egotiations, the government programs represent the interests of the beneiciaries. This method of payment can be adapted to the teaching setting nd through the negotiation process the payment can be made appropriate to he way in which care is delivered. This payment method is best suited o physician groups or institutions, but the individual physician is not recluded from participation in it. There is no limit on the use of the ayment, except as the agreement may specify physician compensation or ayment for institutional services. There would be no reason for beneiciaries covered by the agreement to be categorized on the basis of nonedical criteria. This payment method does not discourage physicians or nstitutional providers from participating in the care of program beneiciaries.

he lump sum method offers the opportunity for prospective payment for efined services, thus, program costs can be held at reasonable levels in elation to the services that are to be provided. This payment method permits influencing professional judgments by prescribing in the agreement the appropriate settings for care and it is not neutral to the selection of settings. By virtue of the annual negotiation of the agreement this payment method allows for experimentation and change on the part of the government programs, the teaching physicians, and the institutional provider. Since all interested parties can enter or be represented in the negotiations, the lump sum method is inherently fair to all parties.

From the standpoint of the teaching physician and the institutional provider, this payment method allows negotiation of payment amounts and conditions rather than acceptance of them. From the perspective of the government programs, it allows prior knowledge of the cost of services and the opportunity for annual negotiation so that the payment can be set at a level appropriate to the care provided. This payment method has many administrative unknowns: identification of a beneficiary group, physician-hospital relationships, and reduction in beneficiary choice of physicians and institutional providers, that make it difficult to assess. If these significant problems can be resolved, this payment method most nearly meets the principles and satisfies the congressional concerns.

The cost payment method fits the teaching setting by paying for services of house staff and teaching physicians on an allowable cost basis without differentiation as to who provides the service. This payment method requires that physicians have an employment or contractual relationship with the hospital, and, thus, many existing employment relationships would be disturbed. Payment for professional services to the hospital limits the use of the revenues and may interfere with long-standing arrangements for the receipt and control of professional service revenues. Some of these arrangements involve state and local governments. The payment method should result in uniform care for beneficiaries in the hospitals which go to the cost method of payment. Since physicians in cost hospitals must agree not to bill charges for services rendered to beneficiaries in that hospital, a reduction in the participation of volunteer teaching physicians can be expected since they will be unable to earn income while teaching and providing patient care. Hospitals with small numbers of program beneficiaries as patients may decide not to participate in the program rather than to employ a physician staff.

Under the cost method, program costs may be determined to be reasonable in relation to the services provided, but program costs are likely to increase for two reasons: many hospitals choosing this payment method have collected little under charge-based methods of payment and will find it easier to claim cost reimbursement; the beneficiary no longer would be responsible for paying coinsurance. This payment method may influence physicians to provide services in settings where the services are covered on a charge rather than cost basis, thus, requiring out-of-pocket payment by the beneficiary. Or, the beneficiary may be influenced to select a cost hospital for medical services because he would have no out-of-pocket costs in that case.

The cost payment method allows for experimentation and changes to the extent that the costs are considered allowable. The payment method is fair to the beneficiary, in terms of cost, but there is no explicit mechanism for requiring even minimal supervision of house officer patient care services. The payment method may be fair to the government, but may be unfair to physicians and institutions who provide care that would otherwise be paid for on a charge basis. Because it places them on a salary basis and reduces their control of the financial relationship with patients, physicians may consider this payment method unfair in spite of the fact that professional service revenues to the institution are several times previous levels.

SUMMARY

From this analysis, three points became clear: the potential for adverse structural effects overshadowed the potential financial effects of changes in the method of payment; no one of these payment methods avoided all adverse impacts and fully satisfied the congressional concerns, thus, modification of them was required; and it was important to assess the potential effects of the modifications just as had been done for the original payment methods.

Costs to the Medicare Program

The differential in costs to the Medicare program under the cost and charge methods of payment is best stated as a percentage change relative to the amounts paid on an allowable charge basis in Fiscal Year 1974 to the sample institutions where data were available. Under the cost method, more hospitals would gain than lose professional service revenues and the increased cost to the Medicare program is estimated to be two percent greater than the amount paid under the charge method in Fiscal Year 1974. These computations are based on Medicare paying full costs, not just salaries and fringes, for physician services.

Modification of the Payment Methods

The recommended payment methods described in Chapter 1, Part I were shaped into final form with modifications, the need for which became apparent in the course of the formal analysis. Only minor modifications were made to the cost method in the ceiling level on the imputed value of volunteer services and the explicit recognition of the ability of a hospital to shift from one payment method to another.

The unified method was explicitly restricted by the steering committee, until its effects are better understood, both in terms of the qualifying criteria and the decision to pay for house officers in their first post-M.D. D.O. year (or second if required for licensure) on a cost reimbursement basis to the hospital. Although the latter decision reduces the administrability of the unified method, the steering committee was hesitant to have house officers in that early stage of training providing billable services. After there is some experience with the unified method, this condition might be relaxed in certain institutions or across the board under the unified method of payment.

The fee method of payment is modified toward meeting the congressional concerns and improving administrability by the elimination of cost reimbursement for the supervisory and teaching services of physicians on general care nursing units. The establishment of the pre-admission physician relationship as a presumptive test for allowable charge payment is also aimed toward reducing administrative costs. The tightened physician role test will help meet the concerns of Congress.

Effects of the Payment Method Modifications

These modifications reduce the adverse effects of the payment methods and increase their responsiveness to the congressional concerns. Thus, the recommended payment methods offer improvements in each of these areas. The principal adverse effects of the recommended payment methods are found with the unified and cost methods -- both of which are responsive to the congressional concerns, fit the teaching setting, and decrease administrative costs. Under the unified method, increased costs would shift to the beneficiary because both physicians and house officers would be supported on an allowable charge basis. Under the cost method, program costs for physician services will increase and, because of the elimination of out-of-pocket costs to the beneficiary, utilization might increase, thus, further increasing program costs.

REFERENCES

Chapter 6

[1] U.S. Congress, Senate, Social Security Amendments of 1972, S. Rept. 92-1230 to accompany H.R. 1, 92d Cong., 2d sess., 1972, p. 195.

Chapter 6

APPENDIX A

ELEMENTS OF THE METHODS OF PAYMENT

Methods of payment for teaching physician patient care services are not consistently or well understood. For example, payment for a discrete professional service, such as a surgical procedure, is often described as a method of payment. In fact, it only describes for what payment is made, or the basis of payment. Similarly, the process by which the amount or level of payment is determined is often mistaken for a method of payment. For example:

> In 1966, the common methods used by organizations administering third-party payment programs for reimbursing medical claims were relative value studies with conversion factors, fixed-fee schedules for selected procedures, or in a few cases prevailing fee schedules.*

In practice, a method of payment may recognize different types of services and different ways of determining the amount of payment. For example, under a fee for service model, types of payment may include: a single, discrete service such as an office visit; a multiple unit service such as maternity care; or a time-related service such as hourly fees for psychiatric services. A fee for service method of payment might also permit all of the determinations on the amount of payment quoted above. In short, it is important to recognize that determining the *basis* for payment or describing the method used to establish the *amount* of payment do *not* in themselves constitute a method of payment for patient care services. It is the combination and interdependence of these two "elements" with three others -- the recipient of payment, eligibility for payment, and source of payment -- that results in a payment method. Each element identifies a fundamental question which any payment method must address:

1. What is the *basis for payment* for patient care services, that is, for what is the payment made?

HIBAC, p. 7.

2. Who is the *recipient of payment* for patient care services, that is, who is to be paid?

3. What conditions must the recipient of payment for patient care services meet in order to establish *eligibility for payment*, that is, what conditions must the physician meet in order for payment to be made?

4. How is payment for patient care services to be established, that is, how is the *amount of payment* to be controlled?

5. What is the *source of payment* for patient care services?

Each of these questions is discussed below with examples to illustrate and clarify the element. These examples should be interpreted as illustrative and not limiting.

A payment method, however, is more than a list of specified elements. The interrelationship of those elements to one another is often what distinguis one method from another; when one element in a payment method is changed, the effect on the other elements must be considered. Presently, methods of payment are defined by the regulations implementing the legislation as much as by the legislation itself. Analysis in terms of the elements typology systematizes the design of methods of payment. It also makes clear that to achieve predictable responses and desired impacts in the graduate medica education system requires a thorough understanding and careful selection of each element of a payment method in both law and regulation. Although lack of specificity may be desirable on the part of both the designer and the recipient of payment, it increases the variability of responses to a payment method and makes it difficult to identify, understand, and assess the impacts associated with changes in payment methods.

Basis for Payment

By definition, a basis for payment is the patient care service arrangement established or agreed to by the physician (or his representatives at the institutional or practice plan level) which legitimizes payment. In simple terms, for what services or activities will payment be made? Bases for payment are often suggested as payment methods, for example, per diem and per capita. As this analysis shows, they are only bases for payment and no more constitute a method of payment than do "discrete professional services," "incident of illness," or other bases for payment which might be identified.

The six bases for payment described below are thought to exhaust the conventional bases for payment.*

---

*For the sake of completeness, however, we recognize the possibility that physicians could be salaried directly by the payor for patient care service

Discrete Unit of Service - a single unit of service such as an office visit, radiological procedure, pathology test, or surgical procedure.

Incident of Illness - multiple units of service related to a single medical event and covered by a single payment (global fee), for example, maternity service or surgery including the pre- and postoperative care.

Time-Based Service - payment is directly related to the amount of time spent in providing a unit of patient care, for example, hourly fees for psychiatric services or anesthesiology.

Per Diem - payment is generally related to a period of time, for example, one day of hospitalization, regardless* of the number or kinds of units of service which may be provided. A similar and widely-used basis for payment is "per session."

Per Capita - payment based on capitation rate related to enrolled patients regardless* of the number or kinds of units of service which may be provided in a specific time period. For example, health maintenance organizations or other forms of prepaid practice in which the enrollee pays a fixed amount for a specified array of services without regard to the number of times the enrollee actually uses the services.

Patient Group Services - payment for a patient group regardless* of the number of patients and the number or kinds of service which may be provided. For example, lump sum payment by a state for services to crippled children.

For a given medical event, multiple bases for payment may be involved. For example, the global payment for maternity cases would not cover care unrelated to the patient's pregnancy or services that would be well outside those related to a "normal" pregnancy.

Recipient of Payment

The recipient of payment is defined as the individual or entity which receives payment from either patient or third party payor for professional patient care services. Two broad categories are identifiable: physician and organizational arrangement. These categories can be subdivided further as described below:

Physician - This recipient category includes individual physicians and private group practices. Patient care revenues received by these individuals or entities are distributed and used at the discretion of the individual or entity. Depending upon state legal codes and other factors, the group practice entity may be styled variously as a professional association (P.A.), partnership, foundation, corporation, or the like.

---

*Subject to agreed upon limitations of benefit coverage and time period.

Organizational Arrangements - this category includes medical schools, hospitals (teaching and non-teaching), public (nonprofit) foundations, government units, and faculty or hospital practice plans.

- Medical Schools - public and private medical schools may receive payment directly for the professional patient care services of their faculties.
- Hospitals - teaching and non-teaching hospitals may receive payment directly for the professional care services of their medical staffs.
- Government Units - may receive payment directly for the professional patient care services of physicians in medical schools or hospitals owned by them. (Commonly, this amount is credited against the annual appropriation for the institution which earned it.)
- Public (nonprofit) Foundations - may receive payment directly for the professional patient care services of their medical staffs. Such foundations may or may not be federated (loosely or closely) with a medical school or teaching hospital.
- Faculty or Hospital Practice Plans - are mechanisms through which medical school faculties and hospital medical staffs agree to pool their practice revenues for the mutual benefit of the institution and themselves. Patient care revenues are received directly by the plan and distributed according to pre-arranged agreements which are reached in consultation with the institution. The medical school or teaching hospitals may merely be recipients of some portion of the plan revenues or they may play a major role in the fee collection and revenue distribution process. The plan may comprise all, several, or only one of the institutional subunits (departments or services) and it may take a variety of legal forms, including partnership, foundation, and professional association.

Conditions for Payment for Covered Services

Conditions, in addition to documentation of the provisions of service, may be imposed as tests of the eligibility of the recipient to be paid for the professional patient care services provided. Such tests may be applied to individual physicians or to the institutions in which they practice. Although a variety of such conditions or tests may exist, there appear to be two classes: physician role tests and patient liability tests. The payor may elect to impose no tests or to impose tests in certain situations and not in others.

Physician Role Test - a condition defined in terms of the relationships and interactions among the physician, the patient, and the house officer. Payment is conditioned by prescribed levels of physician involvement in direct patient care or direct supervision of house staff in patient care delivery. This may or may not relate to physical settings.

Patient Liability Test - a condition defined in terms of some proportion of patients who were billed for professional services and from whom collections were made. This may or may not relate to physical settings.

A combination of physician role test and a patient liability test.

Controls on Payment Amounts

Controls on payment amounts for professional patient care services delivered under any of the patient care arrangements described under "Basis for Payment" can be established using either costs or charges as bases. The amount of payment can be determined by using: (1) comparison of charges to charges for similar services; (2) elements of cost; and (3) lump sum contracts.

Charges - billed charges may be paid up to usual and customary screens controlled by prevailings, according to fixed charge schedules, or other mechanisms may be used to set payment levels based on charges. For example, the usual charge level from some prior year may be inflated to a new level by using the Consumer Price Index for the current year.

Elements of Cost - costs can be defined in terms of what is allowable: specific services or types of compensation, e.g., fringe benefits. The amount paid may be determined by a test of reasonableness, e.g., the "prudent buyer" concept. Except in the possible case where the physician is an employee of the payor, direct physician payment is excluded since there is no acceptable way to establish a "cost" for the services of a physician.

Lump Sum - an amount of money may be available to pay for professional patient care services to a patient group (both the services and the client group may be enumerated or unenumerated). By definition, this type of payment seems to specify an organizational entity as recipient of payment. The amount of the contract as negotiated may be above or below costs.

Source of Payment

Sources of payment for professional patient care services include the funding program, the program beneficiary, and other sources.

Program - (included for this study)

- Medicare (Title XVIII) - Part A, the Hospital Insurance Trust Fund
- Medicare (Title XVIII) - Part B, the Supplementary Medical Insurance Trust Fund
- Medicaid (Title XIX) - the State-Federal program for medical assistance
- Title V, the Maternal and Child Health and Crippled Childrens program

Beneficiary - payment of coinsurance and deductibles from his own resources (self-pay) or by a third party, e.g., Medicaid or a non-profit or commercial insurer.

Other Sources - endowments, grants, etc.

Chapter 6

APPENDIX B

ANNOTATIONS OF METHODS OF PAYMENT

Conventional Fee For Service

I. General Statement

This model is based on current Medicare Part B payment procedures for physicians' services in hospitals in which the physician either does no teaching or donates his supervisory teaching services and bills fee-for-service for his professional patient care services. Thus, no Part A reimbursement is made for any supervisory services provided by teaching physicians to interns and residents.

II. Basis for Payment

Subpart E, Section 405.503 of the Medicare Regulations specifies "specific medical procedure or service" as the basis for establishing a physician's customary charges. Under such a definition, discrete professional service, incident of illness, and time-based units of service are permitted as bases for payment.

III. Recipient of Payment

A. Physician - under assignment, the patient may assign either an individual physician or a medical group to receive direct payment (under certain conditions, the employer of the physician may bill on his behalf or accept reassignment); or

B. Patient - when payment is not assigned, it may be made directly on the basis of submission of a signed request for payment (usually an itemized bill, either receipted or unpaid). Where the patient is the initial recipient, the physician is the ultimate recipient of payment.

C. Hospital - under certain conditions, hospitals which separately identify charges for physicians employed by them may bill on a fee-for-service basis.

IV. Conditions for Payment for Covered Services

Neither a physician role nor patient liability test are specified as necessary to presume the existence of a private patient relationship. Conditions for eligibility to receive payment for Part B claims concern such documentation matters as patient signature requirements, conditons assignment of benefits, and requirements for physician certification and recertification as to the medical necessity of certain services or items furnished. These administrative conditions relate to whether services were: covered; medically necessary; and actually rendered.

V. Controls on Payment Amount

Charge reimbursement - controlled, "reasonable charges" (customary and prevailing in line with criteria and definitions spelled out in regulations in Subpart E, Sections 405.502-405.508).

VI. Source of Payment

A. Programs - covered portions

Medicare Title XVIII - Part B. Supplementary Medical Insurance Trust Fund.

B. Beneficiaries - coinsurance and deductibles

Either self-pay, Medicaid or other third party, depending upon status of patient with respect to Medicaid or other insurance coverage, and the payment arrangements agreed upon between physician and patient.

Existing Teaching Physician Payment Option Under Medicare

Intermediary Letter 372

I. General Statement

I.L. 372 is the present basis on which Medicare makes payment for the patient care services of teaching physicians. It defines the conditions under which those physicians can receive Part B payment on a fee-for-service basis as attending physicians and it defines what are considered personal and identifiable patient care services of teaching physicians.

I. Basis for Payment

A. I.L. 372 specifies the following bases for payment: The language of Section (B)(4) refers to a determination of reasonable visits as a basis for billing. Two bases of payment are mentioned in this section: (1) incident of illness or global fee; and (2) time, in this case with an hourly rate mentioned.

> "...in a course of treatment for which global fee is not ordinarily charged..." [This implies that a global or flat fee could ordinarily be used as a basis for payment.]

> "...the charges billed for an hour of a teaching physician's services..." in patient care.

B. Although not precisely specified, discrete units of service, e.g., individual medical or surgical procedures performed by an attending physician in the teaching setting are also a basis for payment, as implied in the discussion in Section (B)(2) and (B)(3) of the use of uniform charge schedules for purposes of billing Part B charges.

I. Recipient of Payment

Section D specifies who in addition to the physician as an individual may bill (and thus receive initial payment) on behalf of the supervising physician, where payment is assigned. Also specified is the requirement for the individual physician's written authorization for such billing arrangements and the necessity to keep the Part B carrier informed of changes in group membership. Under Section D, the following entities may bill on behalf of physician members:

1. Individual physician or a corporation, partnership, or other organization of physicians (including a practice plan).

2. Institutions - both hospitals (in accordance with Section C certification requirements) and medical schools as entities are specified.

V. Conditions for Payment for Covered Services

A. A physician role test is required for payment under I.L. 372. Two conditions for payment must be met as part of the physician role test:

1. "The physician must be the patient's 'attending physician,'" i.e., he must meet the "attending physician" criteria specified in Sections (A)(1) and (2), for either the patient's entire period of hospital care or a distinctly identifiable segment. These criteria require, as a minimum, that he must:

a. review the patient's history, the record of examinations and tests in the institution, and make frequent reviews of the patient's progress; and

b. personally examine the patient; and

c. confirm or revise the diagnosis and determine the course of treatment to be followed; and

d. either perform the physician's services required by the patient or supervise the treatment so as to assure that appropriate services are provided by interns, residents, or others and that the care meets a proper quality level; and

e. be present and ready to perform any service performed by an attending physician in a nonteaching setting when a major surgical procedure or a complex or dangerous medical procedure is performed; for the physician to be an "attending physician" his presence as an attending physician must be necessary (not superfluous as where, for example, the resident performing the procedure is fully qualified to do so) from the medical standpoint; and

f. be recognized by the patient as his personal physician and be personally responsible for the continuity of the patient's care, at least throughout the period of hospitalization.

2. "The activities of the attending physician must be demonstrated ...by notes and orders...written by or countersigned by the supervisory physician." [Section (A)(3)].

B. The "attending physician" relationship (Part B billing) is specifically denied for:

1. Patient visits made during grand rounds [Section (A)(4)].

2. Customary services of the emergency room supervising physician for patients cared for by the house staff (unless direct personal involvement is proven) [Section (A)(5)].

V. Controls on Payment Amounts

Charge reimbursement - reasonable charges, based on "'the customary charges' of the teaching physicians for services which they provide as attending physicians to Medicare beneficiaries" are specified in Section (B)(2).

Sections (B)(2)(3) and (4) outline conditions for determination of "customary charges" for physicians with and without substantial practices outside the teaching setting and for physicians billing through a hospital or other organization on the basis of a uniform schedule of charges.

I. Source of Payment

A. Program - covered portions

For direct patient care services of attending physicians, by definition, Medicare Title XVIII - Part B Supplementary Medical Insurance Trust Fund. [Section (B)(5) discusses Part A - Part B split in allocating compensation for teaching physicians.]

B. Beneficiary - coinsurance and deductibles

By definition of Part B payment, either self-pay, Medicaid or other third-party, depending on status of patient with respect to Medicaid or other insurance coverage, and the payment arrangements agreed upon by physician and patient.

Proposed Teaching Physician Payment Option Under Medicare

Section 227 Regulations

I. General Statement

The proposed regulations for implementing Section 227 which appear in Volume 38 of the Federal Register dated July 19, 1973, outline a method for paying supervisory physicians in teaching hospitals. These regulations were not implemented pending this study. These proposed regulations stipulate that a fee-for-service can be paid "only where the professional services rendered to the beneficiary were provided by the attending physician or where the attending physician provided personal and identifiable direction to interns and residents who are participating in the care of the 'private patient.'" A private patient is defined in terms of the kind of relationship between the physician and the patient and the kinds of services provided to him by the teaching physician (physician role test), and in terms of whether the patient was billed (directly or indirectly) for those services and an attempt made to collect (patient liability test). A private patient in a hospital setting is defined as are conditions for cost as opposed to charge reimbursement. (A section-by-section outline of the regulations follows the analysis of elements).

II. Basis for Payment

Section 227 generally covers professional physician services rendered to beneficiaries in a teaching setting. (Sections (a) and (b).) Subpart E, Section 405.503 is applicable as in charge method.

III. Recipient of Payment

Not specified. Section (f) contains a clause specifying that it is not the intent of these provisions to interfere in the disposition of payments in accordance with hospital-physician agreements.

IV. Conditions for Payment for Covered Services

Both physician role and patient liability tests of eligibility to receiv reasonable charge payments after July 1, 1973 are specified for physicians and for hospital settings. These tests consist of criteria on which to base a determination of whether a "private patient" relationship may be deemed to exist for Part B payment purposes. The following provisions in Section C outline the "private patient" tests for personal physicians, consulting physicians, and hospital settings:

Section (c)(1) specifies reasonable charge reimbursement after July 1, 1973, if there is a private patient relationship. The following criteria must be met:

(i) physician must be personal physician of patient, and

(ii) physician must meet attending requirements, and

(iii) patient must have been billed with reasonable effort made to collect for those bills, including applicable coinsurance and deductibles. This is really not a patient-by-patient billing but applies to at least 50 percent of physicians' patients in the same setting.

(c) (2) Private patient relationships for consulting physicians.

(c) (3) Patients in hospital setting are private if, either:

(i) during the two-year period ending 12/31/67 and each year thereafter, all patients were billed by physicians rendering services, attempts were made to collect, and charges were collected from 50 percent of patients billed; or

(ii) 85 percent of patients had a professional relationship with a physician; during at least four consecutive months of previous accounting period 50 percent or more of the patients paid billed physician fees from non-public assistance sources; and ability to pay was not a factor in deciding status of patients in setting or service provided.

V. Controls on Payment Amounts

There are two types of payments permitted under Section 227: reasonable charges and reasonable costs. Section (b) and (c)(2), and (c)(3) specify the conditions for reasonable charges; Sections (c)(4), (d), and (e) specify the conditions where reasonable charges are not applicable and reasonable costs can be applied.

A. Charge Reimbursement

1. Prior to July 1, 1973, conditions for reasonable charges (Section b).

2. After July 1, 1973, the private patient relationship must exist. As defined in regulations, the requirements for the existence of the private patient relationship include the physician role test, attending criteria, and the patient liability test set forth in Sections (c)(1)(i), (ii), and (iii).

B. Cost Reimbursement

After July 1, 1973, a hospital may elect cost based reimbursement exclusively in the following situations:

1. Where there is a reduction in total "benefit payments and administrative costs for which the program would otherwise be liable had the cost option not been elected, and...all the physicians...agree not to bill charges..." [Section (c)(4)].

2. "...Where a patient will receive medical services in the teaching setting for which payment on the basis of reasonable charges will not be applicable..." [Section (d)].

3. "...Where there is a question as to whether reimbursement for th services of physicians in a teaching setting should be made on the basis of costs or charges..."reimbursement will be made on the basis of costs." [Section (e)].

VI. Source of Payment

A. Programs - covered portions

Medicare Title XVIII - Part A and/or Part B, correspondence to the reasonable cost and reasonable charge criteria and definitions specified in Sections (a), (c)(4), and (d).

B. Beneficiaries - coinsurance and deductibles

Self-pay or private, excluding Medicaid. In applying patient liability test requirements for payment of deductibles and coinsurance by "private patients" who are Medicare recipients, Section (c)(3)(ii) specifie that such Medicare patients must have "paid all or a substantial part of [their] fees from sources other than public assistance programs. (A health insurance patient will be deemed to have paid fees from such private source only if he paid his supplementary medical insurance deductible and coinsurance...in full or substantial part from private sources and no greater effort was made to collect the supplementary medical insurance deductible and coinsurance amounts than the amounts due from other patients)."

Section-by-Section Outline of 227

Section (a)	General statement about conditions for reasonable charge reimbursement prior to July 1, 1973 and after July 1, 1973.
Section (b)	Specifies conditions for reasonable charge prior to July 1, 1973; basically I.L. 372 requirements of attending physicia
Section (c)(1)	Specifies reasonable charge reimbursement after July 1, 1973; private patient relationship. (i) physician must be personal physician of patient and (ii) physician must meet attending requirements and

(iii) patient must have been billed and reasonable efforts made to collect including applicable coinsurance and deductibles. This is really not a patient by patient billing but applies to at least 50 percent of physicians' patients in the same setting.

(2) Private patient relationships for consulting physicians.

(3) Patients in hospital setting are private if, either

(i) between 12/31/65 and 12/31/67, all patients billed by physician rendering services, attempts made to collect, and charges are collected from 50 percent of patients billed; or

(ii) 85 percent of patients had professional relationship with physician; during at least four consecutive months of previous accounting period 50 percent or more of patients paid billed physician fees from non-public assistance sources; ability to pay was not a factor in deciding status of patients in setting or service provided.

(4) Where hospital may elect cost based reimbursement.

(5) Conditions for determining a "setting."

tion (d) Situations where charges not applicable and costs can be used.

tion (e) Where there is a question of charges, use costs.

tion (f) Clause which says that nothing in this section restricts disposition of payments in accordance with agreements between hospitals and physicians.

Unified Model

General Statement

Payments are made to a legal entity for patient care services of fully lified teaching physicians and physicians-in-training, regardless of ch type of physician provides the service. This entity in turn compensates participating physicians and interns and residents out of fees generated by them. The legal entity could be organized on a departmental, hospital, o medical center basis with appropriate administrative mechanisms established for billing, payment collection, fee distribution, and administration For billing purposes, all professional services to patients would be regarded as billable services.

II. Basis for Payment

A schedule of charges would be developed to establish customary charges for services of participating physicians and interns and residents. Subpart E, Section 405.503 of the Medicare Regulations specifies "specific medical procedure or service" as the basis for establishing a physician's customary charges. Under this definition, discrete professional service, incident of illness, and time-based units of service would be permissible bases for payment.

III. Recipient of Payment

A. Legal entity - a hospital, medical school, or other legally accountable organization could receive payment on behalf of participating teaching physicians and interns and residents and have responsibilities for compensating them.

IV. Conditions of Payment for Covered Services

Neither a physician role nor a patient liability test would be required, beyond a demonstration through written notes and records of what actual patient care services have been rendered.

V. Controls on Payment Amounts

Charge reimbursement - "reasonable charges" - the schedule of charges for participating physicians and interns and residents would be based on customary and prevailing charges for similar services made by physicians in the area. Reasonable charges would be billable whether or not a particular service is provided by a teaching physician, intern, or resident. Alternatively, a fee schedule could be established.

VI. Source of Payment

A. Programs - covered portions

Medicare Title XVIII - Part B Supplementary Medical Insurance Trust Fund

B. Beneficiaries - coinsurance and deductibles

Self-pay, Medicaid or other third party - some limitations on the Medicare beneficiaries' liability for increased co-payment costs caused by transfer of graduate medical education financing from Part A to Part B would need to be imposed, either through imposition of a ceiling on co-payments or through an administrative transfer of funds to Part B from the Part A Hospital Insurance Trust Fund.

Cost Model

I. General Statement

This model reflects the SSA Regulations (Federal Register, Vol. 40, No. 154, August 8, 1975) which implements Section 15 of PL 93-233 which promulgates on an interim basis the cost reimbursement provisions of Section 227, PL 92-603. These regulations allow a teaching hospital to elect reasonable cost reimbursement for the direct medical and surgical services of its physicians, provided that all physicians who render services in the hospital elect this arrangement (or are otherwise precluded from billing charges). Where such cost reimbursement is elected, the regulations also govern the treatment of volunteer services donated by physicians and the reimbursement of certain medical school costs for services rendered in a teaching hospital by physicians on the faculty of a medical school or organization related to the medical school. These regulations are in effect until June 30, 1976.

NOTE: Since the regulations make distinctions as to how the hospital is to be reimbursed for costs based on the relationship of the physician to the hospital, the following categories will be treated separately, wherever necessary, in the following analysis: (A) physicians on hospital staff; (B) physicians on medical school faculty; (C) physicians on the voluntary staff of the hospital or medical school. In addition, the regulations specify, in some cases, distinctive requirements or procedures for reimbursing medical school faculty services, based on the relationship between the teaching hospital and the medical school. These are treated separately where necessary.

I. Basis for Payment

A, B. Physicians on Hospital Staff and Medical School Faculty

The payment basis for physicians on the hospital staff or medical school faculty is an average cost per diem, determined by using the "aggregate per diem method of apportionment" as defined and explained in Section 405.465 (g)(1), (h) and (i):

> Using the aggregate per diem method of apportionment, average cost per diem is defined as the amount computed by dividing total reasonable costs of direct medical and surgical services rendered by physicians on the hospital staff and physicians on the medical school faculty by the sum of:
>
> (1) Inpatient days (determined by counting the day of admission as 3.5 days and each day subsequent to a patient's day of admission except the day of discharge as 1 day).
>
> (2) Outpatient visit days (determined by counting only one visit day for each calendar day that a patient visits the outpatient department).
>
> Once the average cost per diem has been determined, this amount is multiplied by each of (1) total inpatient Part A days applicable to Medicare beneficiaries; (2) total inpatient Part B days applicable to Medicare beneficiaries and (3) total outpatient Part B visit days applicable to Medicare beneficiaries. The sum of these three computations for each category of physicians (i.e., hospital staff and medical school faculty) is the amount apportioned to the Medicare program.

C. Physicians on the Voluntary Staff of the Hospital or Medical School

Payment for direct medical and surgical services rendered to Medicare patients is also based on an average cost per diem, except that the average per diem is derived from the imputed value of the volunteer physician's direct medical and surgical services rendered to all patients. The basis for imputing the value of volunteer services is the "salary equivalency" payment. This payment represents compensation for contributed medical staff time which, if not contributed, would have to be obtained through employed staff on a reimbursable basis. As defined in Section 405.465 (d)(1), the salary equivalent is:

> a single hourly rate covering all physicians regardless of specialty, which is applied to the actual regularly scheduled time contributed by volunteer physicians in rendering direct medical and surgical services to Medicare patients including supervision of interns and residents in such care. This hourly rate may not exceed the equivalent of the average direct salary (exclusive of fringe benefits) paid to all full-time salaried physicians (other than interns and residents) on the hospital staff, or, where the number of full-time salaried physicians is minimal, to physicians at like institutions in the area.

Section 405.565 (d)(1) specifies the conditions under which physicians may and may not be considered as unpaid volunteers for the purpose of "salary equivalent" payments and places a ceiling on Medicare reimbursement for the services of an individual volunteer physician:

> A physician on the hospital staff or on the medical school faculty who receives any compensation from the hospital or the medical school for direct medical and surgical services rendered to health insurance program patients will not be considered an unpaid voluntary physician. Where, however, a physician receives compensation from the hospital or medical school and spends less than full-time in the hospital and medical school, a salary equivalent payment for his regularly scheduled direct medical and surgical services to Medicare patients of the hospital may be imputed (except where the compensation covers the provision of some direct medical or surgical care). However, the sum of the imputed value for volunteer services and his actual compensation from the hospital and the medical school may not exceed the rate of $30,000 per year.

II. Recipient of Payment

A. For direct medical and surgical services of physicians on hospital staff. As specified in Section 405.465 (b):

Hospital - for reasonable costs, defined as direct salary paid to such physicians plus applicable fringe benefits.

B. For direct medical and surgical services of physicians of medical school faculty.

1. Where hospital and medical school are related by common ownership and control.* As specified in Section 405.565 (C)(1)(i):

Hospital - for reasonable costs, as defined for physicians on hospital staff.

2. Where hospital and medical school are not related organizations and where hospital pays medical school for direct medical services rendered to all patients:

---

*In accordance with Section 405.427 of the Medicare Regulations. Section 405.427 provides that costs of services, furnished to the provider (hospital) by organizations related by common ownership and control are includable in the allowable cost of the provider at the cost to the related organization as long as such costs do not exceed the price of comparable services that could be purchased elsewhere.

Hospital - for reasonable costs, as defined for physicians on hospital staff

3. Where hospital and medical school are not related organizations and where hospital pays medical school only for costs of direct services rendered to Medicare patients:

Hospital - for allowable costs, defined as "...costs of the medical school not to exceed 105 percent of the sum of physicians' direct salaries, applicable fringe benefits, employer's portion of FICA taxes, federal and state unemployment taxes, and workman's compensation paid by the medical school..."

C. For direct medical and surgical services of physicians on the voluntary staff of the hospital or medical school:

As specified in Section 405.465 (d)(1): a fund designated by the organized medical staff of the hospital (or, where appropriate, designated by medical school faculty). A fund is defined as an organization of physicians which meets either of the following requirements:

1. Has and retains exemption, as a governmental entity or under Section 501 (c)(3) of the Internal Revenue Code (nonprofit educational, charitable, and similar organizations), from federal taxation; or

2. Is an organization of physicians who, under the terms of their employment by an entity which meets the requirements of paragraph (b)(1) of this section, are required to turn over to that entity all income which the physician organization derives from the physicians' services.

Sections 405.466 (a)(3)(i) and (a)(3)(ii) specify that payments to the fund are be used solely for the improvement of care of hospital patients or for educational or charitable purposes and that no charge be made to individuals furnished the services nor to any other persons.

IV. Conditions for Payment of Covered Services

Neither a physician role nor a patient liability test is specified, but either or both may be a relevant element of a cost model, as a test of the institution's ability to deliver care. Requirements for reimbursement to the hospital or, in the case of salary equivalent payments, to a fund are specified in the proposed regulations (they deal with administrative questions and not with eligibility to receive payment).

V. Controls on Payment Amounts

A. For direct medical and surgical services of physicians on staff, medical school faculty or voluntary staff. With a single exception, reasonable cost is the basis for establishing levels of payment for direct medical and surgical services of physicians on the hospital staff, medical school faculty, and on the volunteer staff of either the hospital or the medical school (on a "salary" equivalency basis).

Section 405.465 (b) defines reasonable cost as "the direct salary paid to such physicians, plus applicable fringe benefits." Two requirements must be met in determining reasonable cost:

1. As outlined in Section 405.465 (j), the compensation paid by a teaching hospital or medical school to physicians in a teaching hospital must be allocated to the full range of services implicit in the physicians compensation arrangements. Such allocation must be made and must be capable of substantiation on the basis of the proportion of each physician's time spent in rendering each type of service to the hospital and/or medical school.

2. As outlined in Section 405.465 (g), costs must be apportioned to Medicare program beneficiaries in accordance with the aggregate per diem method described under Basis for Payment.

B. EXCEPTION - for direct medical and surgical services of physicians on the medical school faculty rendered in a teaching hospital where the hospital makes payment to non-related medical school only for the costs of direct medical school faculty services rendered to Medicare patients. The basis for establishing level of payment is the allowable cost of the medical school, which is limited to an amount not in excess of 105 percent of the sum of physicians' direct salaries, applicable fringe benefits, employer's portion of FICA taxes, federal and state unemployment taxes, and workman's compensation paid by the medical school.

VI. Source of Payment

The regulations specify Part A as the source of payment. The regulation's intent is to end the Part A - Part B split in determining Medicare reimbursement for the direct services of physicians in teaching hospitals (including supervision of interns and residents) by eliminating reasonable charge billings under Part B and allowing reimbursement for such services to be treated as a reasonable cost to the provider (hospital).

Lump Sum Payment Model

I. General Statement

This model is based on the current Title V program: a federal-state categorical formula grant program for maternal and child health, family planning, and crippled children's services. Under the program, the federal government grants* to states (based on approved plans) monies for the provision of services in four specified categories (intensive infant care, family planning, health of children and youth, and dental care of children and youth). The states, in turn, pay recipients who provide needed service to the specified client group without regard to the number of units of service or the number of patients seen.

II. Basis for Payment

Client group services is generally the basis for payment. Most physicians' services are reimbursed through contracts with selected physicians to provide services on a salaried basis, or through maintenance of outpatient clinics. For surgical or other specific procedures, pre-approved rate schedules are used.

III. Recipient of Payment

Either a physician, an institution, such as an outpatient clinic of a hospital, or a nonprofit organization may be given a flat amount under Title V to operate a clinic. All of these can be recipients of payment.

IV. Conditions for Payment for Covered Services

No eligibility conditions are directly specified for the recipients of payment, but states, using their discretion, select or authorize specific physicians to provide Title V services.

V. Controls on Payment Amounts

Types of payment are determined by the state agency and include flat fees, payment of salaries to physicians who provide program services, negotiated fee schedules, pre-authorization of charges, and payment of "reasonable" costs.

VI. Source of Payment

Title V of the Social Security Act: Maternal and Child Health and Crippled Childrens' Services.

---

*The amount available to each state is determined by allotment formulas in 51a. 123 of the Regulations (Title 42, Chapter 2, Subsection D).

Chapter 7

IMPROVING PHYSICIAN SPECIALTY DISTRIBUTION IN THE UNITED STATES

he specialty distribution of physicians in the United States differs from hat of most other developed countries in that a high percentage of American hysicians are engaged in specialty practice. Table 1 compares the physician pecialty distribution in this country to that of England and Wales, and anada - countries whose populations enjoy equal or better health status han people in the United States. 1/ Compared to these countries, the nited States has a lower percentage of physician generalists and relies to greater extent on physician specialists.

he dominance of specialists in American medicine began after World War II. able 2 shows the change in the physician specialty distribution in this ountry from 1931 to 1973. The ratio of general and family practitioners o population, which reached a peak in 1940 of 90.6 per 100,000 now is elow 30 per 100,000. Recent projections made by the Department of Health, ducation, and Welfare 2/ of future physician specialty distribution based n the current distribution of physicians in specialty training predict continuation in the direction of even greater specialization. However, ecent AMA testimony indicates this is changing.

he shift in the distribution of physicians was a response to a complex et of influences on medical education and medical care, including the heavy ostwar investment in research and new technology by the National Institutes f Health, the emphasis in both public and private health insurance cover-ge on in-hospital services and surgery, and the absence of a national trategy for physician manpower planning.

n the 1970s, consequences of a medical care system heavily reliant on hysician specialists are being examined. Many studies are being conducted o examine the cost and quality implications of the current physician pecialty distribution so that a foundation can be established for future hysician training policies.

t can be argued that a medical care system dominated by physician special-sts will be more expensive than one based on physician generalists. The

TABLE 1. DISTRIBUTION OF PHYSICIANS BY SPECIALTY (percent)

Specialty	United States a/	England & Wales b/	Canada
General & family practice	25.4	54.0	40.6
General internal medicine	14.4	1.5	6.5
General pediatrics	6.0	1.9	2.8
Subtotal	45.8	57.4	49.9
Internal med. subspecialty	3.2	NA	NA
Pediatrics subspecialty	0.2	NA	NA
Dermatology	1.3	0.8	0.6
Neurology	1.0	0.5	c/
Psychiatry	7.1	4.8	4.4 c/
General surgery	10.7	6.8	8.9
Neurosurgery	0.9	0.4	NA
Obstetrics & gynecology	6.6	4.1	3.3
Orthopedic surgery	3.3	4.1	NA
Plastic surgery	0.7	0.2	NA
Ophthalmology	3.4	1.6	3.3 d/
Otolaryngology	1.7	1.4	d/
Urology	2.0	0.4	1.1
Anesthesiology	3.9	5.2	3.6
Pathology	3.0	3.0	2.1
Radiology	4.8	2.5	3.1
Physical med. & rehab.	0.4	NA	0.3
Others	-	6.8	19.4

Sources: United States: G.A. Roback, *Distribution of Physicians in the United States, 1973* (Chicago: American Medical Association, 1974), and personal communications from American Osteopathic Association; England and Wales National Health Service, and Canada: World Health Organization, *World Health Statistics Annual, 1970*, 3 (1974).

a/Includes D.O.s and M.D.s listing their major professional activity as patient care.

b/Only physicians participating in the National Health Service are included.

c/Neurology and psychiatry combined.

d/Ophthalmology and otolaryngology combined.

TABLE 2. DISTRIBUTION OF PHYSICIANS BY SPECIALTY, 1931-1973 (percent)

Specialty	1931 a/	1940 a/	1949 a/	1958 b/	1967 c/	1973 c/
Total physicians	150,358	156,970	173,129	179,485	247,256	270,412
Physicians per 100,000 pop.	119.8	118.4	115.6	102.7	124.5	130.0
Population in 100,000	1240.4	1325.9	1497.7	1748.8	1986.3	2080.9
Gen. & fam. prac.	82.4	90.6	73.7	39.2	36.2	27.9
General internal med.	4.1	4.9	7.7	9.9	16.6	19.3
General pediatrics	3.1	1.8	2.9	5.3	7.2	8.0
Internal med. subspec.	NA	.5 d/	1.3 e/	2.1 e/	2.0 e/	4.3 e/
Pediatric subspec.	NA	NA	NA	NA	.1	.3
Dermatology	.8	.7	1.1	1.4	1.6	1.8
Neurology & psychiatry	1.7	1.8	3.2	4.6	8.5	9.5
General surgery	10.7 f/	5.0 f/	8.1 f/	13.0 g/	13.9 g/	14.3 g/
Neurosurgery	NA	NA	NA	.5	1.0	1.2
Obstetrics & gynecology	5.2	1.9	3.4	7.3	8.0	8.8
Orthopedic surgery	.7	.8	1.4	2.1	3.7	4.5
Plastic surgery	NA	NA	NA	.3	.6	.9
Ophthalmology	NA	NA	NA	NA	4.1	4.6
Otolaryngology	6.8	5.7	6.2	6.0	2.5	2.3
Urology	1.9	1.3	1.5	1.9	2.4	2.7
Anesthesiology	.4	.2	.8	2.4	4.3	5.2
Pathology	.6	.7	1.2	1.6	3.5	4.0
Radiology	1.4	1.2	1.9	2.7	4.7	6.2
Physical med. & rehab.	NA	NA	.2	.2	.4	.5
Others	NA	1.2	1.2	2.2	2.2	2.5

Sources: 1931: R.G. Leland, Distribution of Physicians in the United States (Chicago: American Medical Association, 1935); 1940 and 1949: R. Stevens, American Medicine and the Public Interest (New Haven: Yale University Press, 1971); 1958: American Medical Directory, 20th ed. (Chicago: AMA, 1958); 1967: Distribution of Physicians, Hospitals and Hospital Beds in the U.S., 1967 (Chicago: AMA, 1968); 1973: G.A. Roback, Distribution of Physicians in the U.S., 1973 (Chicago: AMA, 1974).

Note: M.D.s only.

a/All physicians; specialists are full-time in their specialty.

b/Non-federal general practitioners and full-time specialists in the United States.

c/Non-federal physicians in the United States listing patient care as their primary professional activity; specialists not necessarily full-time.

d/Pulmonary disease only.

e/Pulmonary disease, allergy, cardiology, and gastroenterology.

f/Occupational medicine and general surgery.

g/General surgery, thoracic surgery, and colon and rectal surgery.

cost implications of a high concentration of specialty physicians are perha best illustrated in the area of primary medical care - that portion of medical practice which provides routine, office-based medical services. It has been estimated that primary medical care accounts for approximately 75 percent of all ambulatory medical services in this country. 3/ If such care is delivered by specialists who charge more for their services and see fewer patients per day than physician generalists, then the total direct cost for physician services for primary care would be significantly higher. Recent studies have shown that many specialists and subspecialists spend considerable time delivering primary care. 4/ Although it is sometimes argued that primary care delivered by specialists is of higher qualit than that provided by generalists, there is no evidence to support this supposition. 5/ Indeed, in geographic areas where the concentration of some specialists is particularly high, there is concern that specialty skills cannot be maintained because there are limited opportunities to use them. 6/

The cost implications of having specialists deliver primary medical servic are much broader than simply computing the cost difference between generali and specialist services. Demographically similar areas of Vermont served by generalists had much lower rates of hospitalization (approaching that of prepaid group practices) than similar areas served primarily by specialists. 7/ Although the per capita cost of hospital services was double in the area served by specialists, no difference could be found in the health status of the populations in these areas. Indeed, it is of interest that, when surveyed, the people in the area which had lower per capita expenditu for medical services felt that their health needs were adequately met, but people in the high-cost area served by specialists indicated that more physicians and hospital beds were needed in their community. Although additional studies are needed, this study suggests that specialization may have appreciable cost implications.

Shorter postgraduate training time for primary care physicians compared to other specialists also has cost implications. If two or three years are needed to train primary care physicians and four to seven years for other specialists, the costs to the economy are the costs of training plus the cost of primary care services "lost" during specialty and subspecialty training.

THE GEOGRAPHIC DISTRIBUTION OF PHYSICIANS

There is a substantial difference in the availability of physicians to people living in different areas in the United States. Table 3 shows the variation in the physician-to-population ratios among states. Ratios range from South Dakota, which has only 75 physicians per 100,000 populati to New York, which has 198, or over twice as many. However, comparing physician-to-population ratios for areas as large as states can blur the

TABLE 3. RATIO OF PATIENT CARE PHYSICIANS TO CIVILIAN POPULATION (1973)

State	Civilian Population (x 1,000)	MD per 100,000 population	DO per 100,000 population	Total physicians per 100,000 population
Total	208,094	130	7	137
Alabama	3,514	82	0	82
Alaska	303	78	2	80
Arizona	2,030	131	20	151
Arkansas	2,029	81	1	82
California	20,285	168	1	169
Colorado	2,387	150	11	161
Connecticut	3,061	169	1	170
Delaware	570	121	8	129
District of Columbia	737	339	1	340
Florida	7,587	127	12	139
Georgia	4,732	102	3	105
Hawaii	776	140	3	143
Idaho	764	87	3	90
Illinois	11,200	125	3	128
Indiana	5,309	92	3	95
Iowa	2,903	89	14	103
Kansas	2,248	104	9	113
Kentucky	3,309	94	1	95
Louisiana	3,735	105	1	106
Maine	1,018	101	20	121
Maryland	4,013	159	1	160
Massachusetts	5,795	177	3	180
Michigan	9,029	114	27	141
Minnesota	3,894	133	2	135
Mississippi	2,256	77	0	77
Missouri	4,731	115	24	139
Montana	714	96	4	100
Nebraska	1,530	104	2	106
Nevada	539	102	5	107
New Hampshire	786	123	2	125
New Jersey	7,326	131	12	143
New Mexico	1,089	97	13	110
New York	18,236	195	3	198
orth Carolina	5,181	100	1	101
orth Dakota	626	85	1	86
hio	10,716	119	12	131
klahoma	2,635	90	17	107
regon	2,223	130	8	138
ennsylvania	11,890	132	15	147
hode Island	945	151	9	160
outh Carolina	2,657	88	0	88
outh Dakota	678	71	4	75
ennessee	4,106	107	1	108
exas	11,628	107	8	115
tah	1,153	126	1	127
ermont	464	151	9	160
irginia	4,665	113	1	114
ashington	3,383	134	6	140
est Virgina	1,793	93	5	98
isconsin	4,568	109	4	113
yoming	349	89	3	92

Sources: G.A. Roback, Distribution of Physicians in the U.S., 1973 (Chicago: American Medical Association, 1974); American Osteopathic Association, personal communications.

magnitude of the geographic inequities in physician distribution by averagi out high and low distribution areas. For example, a recent study of the variation in physician-to-population ratios among counties in Maryland show a range of physician concentration from 308 physicians per 100,000 population to 30 physicians per 100,000 population. 8/

Perhaps a more significant comparison is the contrast in the concentration of physicians in urban and rural areas. The American Medical Association's physician distribution data for 1973 9/ indicated that there were 150 physicians per 100,000 population in urban areas, compared to 73 per 100,000 population in non-urban areas. Within urban centers, low-income areas have been shown to have low concentrations of physicians. 10/ Recent the Secretary of Health, Education, and Welfare designated 384 areas, including rural and inner city areas, in this country as critical physician shortage areas where the physician-to-population ratio was less than one physician for 4,000 people.

DEFINING GOALS

In the preceding section, the current distribution of physicians among specialties was discussed and some implications of the high percentage of physician specialists in this country were considered. This section is a discussion of how accurately and by what means one can determine goals for an improved physician distribution among specialties.

In any discussion of physician manpower distribution, the relationship between physician distribution and other aspects of the health care delive system must be considered. Physician manpower is only one variable which can be altered to improve the health care system.

For example, physician specialty distribution will be influenced by the availability of non-physician health professionals. If specific types of allied health professionals can effectively substitute for some physici generalists or specialists, then physician manpower policy might best be modified to accommodate such substitution. The organization of medical services will influence public policy in physician manpower distribution: a geographic area which has a highly regionalized medical care system with clear lines of referral may require fewer specialists than a less organize system. If there are significant segments of the population which do not have financial access to physician services, then merely changing physicia specialty distribution will not appreciably improve either the physical access to services or the health of these people.

Another important consideration is that there is not a direct relationship between the services generated by the health care system and the health status of the population it serves. Above a certain level, the addition o resources for the delivery of direct medical services does not significant mprove the health status of the population. 11/ Since health outcomes are oorly correlated with the level of health service resources available to population, the impact of proposed changes in resource allocation can e determined only indirectly.

urthermore, the service mix generated by a given distribution of physicians oes not bear a direct relationship to physician specialty distribution. opulation-based rates of use of specific types of medical and surgical ervices were measured within small geographic areas in Vermont and Maine. reas in these states can be identified which have similar physician pecialty distributions, but very different patterns of use of medical ervices. 12/ For example, some populations served by similar concentrations f general surgeons have different overall rates of surgery. Even in areas n Vermont and Maine where surgical rates are similar, the specific sur- ical procedures delivered vary. Similar variations in the pattern of edical procedures have also been observed. The different services elivered to similar populations probably reflects disagreement among ractitioners on the efficacy of common medical and surgical practices.

hese studies highlight the fact that the kinds of services which a popu- ation will receive cannot be predicted even if the composition of pecialists serving that population is known. Therefore, it is difficult o develop precise goals for physician specialty distribution. More analytic pproaches to developing an optimal physician specialty distribution must wait long-term basic research on the efficacy of common medical and sur- ical practices.

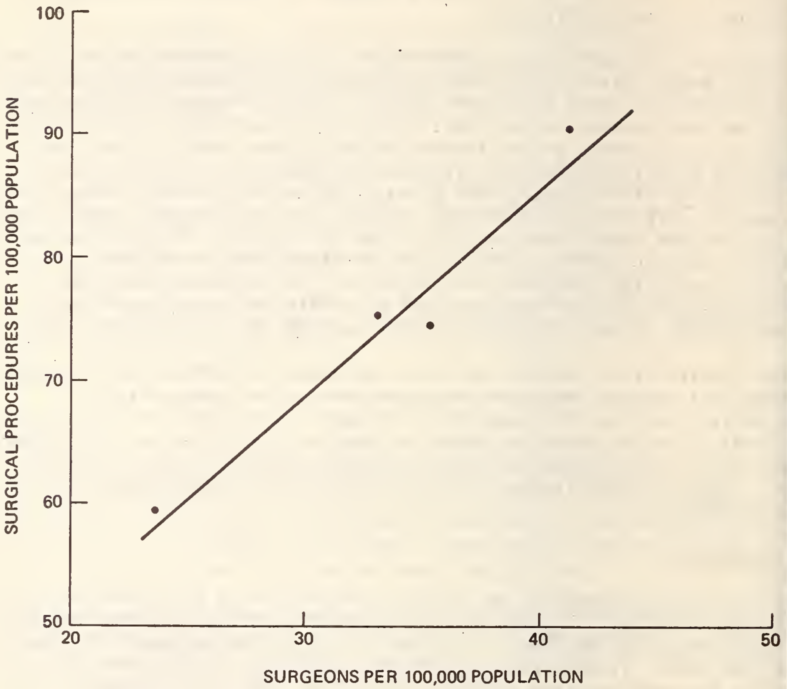
eeds Approach

ne method for determining an optimal distribution of physicians by specialty ould be to analyze the population's need for physician services in each edical specialty and then to estimate the physician manpower required to eet the need. Translating the estimate into physician manpower equivalents o meet the need requires consideration of the variables discussed above.

iven several years, unmet needs could be determined by examining a sample f the population. Otherwise, one must rely on the fragmented data vailable on the demand for medical services as a proxy for need. Data n the demand for medical services may include evidence of under use, over se, or a mix of both. Furthermore, the demand for specific medical ser- ices has been shown to vary considerably among demographically similar reas and to be influenced by the availability of the supply of such ervices.

igure 1 shows the variation in the rate of common surgical procedures per opulation in four geographic areas in the United States. The rate of ll surgical procedures varies over twofold, and is related directly to he availability of surgeons. Similar relationships between the rate of ubspecialty surgical procedures and the availability of surgeons who perform uch procedures can be demonstrated.

FIGURE 1
TOTAL SURGICAL SERVICES: VARIATION AMONG FOUR AREAS



Source: Data adapted from the American College of Surgeons and the American Surgical Association, Surgery in the United States: Summar Report of the Study on Surgical Services in the United States (1975) p. 38.

hough it is not surprising that there is more surgery in areas with e surgeons, the true need for surgical services cannot be inferred from h data. Do unmet needs exist in that geographic area which has the est rate of common surgical procedures? Does the area with the highest e of surgical procedures have excess surgery, or are there still unmet eds? Comparative studies of the health status of people living in areas h high and low rates of surgical and medical intervention are required establish a definition of true need.

true need for specific medical services could be determined, in many es the type of physician specialists best suited to meet these needs o would have to be determined. For example, the recent National Ambula- y Medical Care Survey showed that one of the most common problems for ch patients seek medical help is low back pain. 13/ What criteria can be eloped to enable manpower analysts to determine the appropriate percentage low back problems which should be evaluated by orthopedic surgeons, rosurgeons, or primary care physicians? The implications for physician power planning would be profound if one were to assume, for example, that patients with low back pain were to be evaluated by an orthopedic geon rather than a primary care physician. How can one determine the ropriate percentage of stroke patients who should be seen by a neurolo- t, or skin problems to be seen by a dermatologist?

ormation is lacking on the efficacy of many common medical and surgical erventions, particularly for some specialties, such as psychiatry. ermination of an optimal manpower supply for this and other specialties uires clinical tests of the efficacy of common therapies.

ecent study which attempted to estimate the need for primary care sicians by analyzing the population's needs for primary medical ser- es 14/ illustrates the limitations of this approach. An attempt was e to estimate the needs for primary medical services by analyzing the and for physician services as reported in the Health Interview Survey. 15/ nty-four pediatricians and 55 internists who were in private practice who also held clinical faculty positions at the Yale Medical School e asked to translate the demand for the 250 most common pediatric and ernal medical problems into physician manpower equivalents necessary to t this demand. Based on the assumption that each pediatrician and ernist should work approximately 2,200 hours per year, the authors culated that 133 physicians were needed per 100,000 population to iver primary care of good quality. This high estimate of the need for mary care physicians (the average physician-to-population ratio for country for all active, patient care physicians is 137 per 100,000 shown in Table 3) illustrates the problems with using the needs approach determine physician manpower supplies. The demand data on which this power estimate was based are crude, since they are presented in cate- ies which aggregate many diagnostic entities and are based on the ception of illness of the consumers interviewed. Furthermore, the esti- es made by academically oriented specialists introduces a set of value judgments about time needed to deliver specific primary care services which may differ considerably from those of nonacademic primary care deliverers.

Productivity Studies

Study of physician productivity can be useful in estimating whether there are too many or too few specialists in a given class. It is necessary as a first step in a productivity analysis to decide whether a goal of physici manpower policy is to have all specialists serve in a consultant capacity, doing only specialty services, or whether physician specialists should also deliver primary care. The latter assumption will accommodate almost any ratio of specialists to total physicians. For this discussion, the assumption is made that specialists should provide most of their services in those areas of medical practice for which they are especially trained.

Productivity studies can describe the total volume of services delivered by a given class of physicians and can distinguish between specialty and primary care services delivered. Particularly useful is information about the percentage of time specialists spend in delivering non-specialty services. A summary of several recent studies which contribute to an understanding of the service mix delivered by various specialists in this countr is presented below.

The Study on Surgical Services for the United States (SOSSUS) 16/ provides information on the operative productivity of surgeons in all surgical specialties. Data come from a national questionnaire of approximately 6,000 active surgeons and an analysis of the operative logs of all hospital in four geographic areas, each with a population of about one million, including a Standard Metropolitan Statistical Area.

Both sources of data show that the average surgeon in the United States operates about three times per week. Among surgical subspecialties, the operative workloads range from a low in ophthalmology of about one and one-half times per week to a high in plastic surgery of five and one-half times per week. In the more detailed studies of the pattern of surgical services delivered in the four geographic areas studied, the average workload per surgeon was normalized for the complexity of the procedures by using the California Relative Value Scale (CRV). The CRV scale assigns relative values to operative procedures, taking into account the complexit of the procedure and the operative time required to perform it. The avera CRV-weighted total operative workload for most surgeons in the four areas was well below 2,000 CRV equivalents per year, which was considered to be too low by the SOSSUS committee.

The SOSSUS committee report contains information on the operative workload of surgical specialists but it contains no information about how surgeons spend their non-operative time. However, since surgical workloads in several surgical specialties were low, the SOSSUS committee suggested a policy of reducing training positions in these fields.

Log diary studies now in progress at the University of Southern California will provide information about the case mix seen by all specialists. The study will develop practice profiles for each medical and surgical specialty which will provide accurate estimates of the percentage of specialists' time spent in non-specialty practice. The prototype of this approach, a study of the productivity of cardiologists, 17/ showed that 21.3 percent of the average cardiologist's patient contacts were with non-cardiac patients. Similar results have been presented by an informal survey of graduates of the Mayo Clinic's subspecialty training programs in internal medicine. 18/ It was found that over 70 percent of the subspecialists trained at the Mayo Clinic were spending over half their time delivering primary care.

The National Ambulatory Medical Care Survey, 19/ conducted by the National Center for Health Statistics, collected basic information of the kinds of ambulatory patient problems seen by a randomly selected sample of 1,700 office-based physicians in the United States. The preliminary results are of limited value in developing physician manpower policy since they provide information only on the specialty workload of specialists. Analysis of data collected in this survey may be helpful in describing the patient problems most frequently seen by each class of specialist.

The American Medical Association collects data on the volume of patients seen by selected physician specialties by periodic surveys of physician use rates. These data are highly aggregated and can provide only rough information on the total number of patient visits per physician per week.

The National Disease and Therapeutic Index is a continuing survey begun in 1957 of physician office practice. It provides information on volume of practice, the most common medical problems seen, and the most common drugs used by physicians in 15 categories. The survey data can be used as a rough guide to the amount of non-specialty services being delivered by specialists.

Several states have surveyed their physician population and have collected data on the percentage of time specialists spend in primary care. However, in some surveys, a definition of primary care was not included, so survey results may be somewhat subjective.

Physician Distribution in Organized Health Care Systems

Comparisons of physician distribution in the United States to other developed countries and organized medical care systems within this country, specifically prepaid group practices, have been used by manpower analysts to determine desirable specialty distributions. Since countries such as England spend less money on direct medical services and have better health status indices than the United States, 20/ it has been argued that the United States might pattern its physician specialty distribution after these countries. Although no comparative data are availa on the health status of enrollees compared to non-enrollees of prepaid group practices in the United States, it is generally assumed that prepaid groups deliver acceptable quality medical services at lower total cost of care than the private, fee-for-service sector.

The specialist-to-population ratios from organized medical care systems cannot be directly applied to the population as a whole for several reasons, including the fact that physician manpower distribution must be considered in the context of other variables in the health care delivery system. Direc comparisons of physician manpower distribution between the fee-for-service system, and the British and prepaid group systems cannot be made since there are differences in assumptions about the basic organization of health care delivery. For example, in the organized medical care systems mentioned, specialists are seen after the patient is referred by his physician; in the United States, many patients seek specialists' services directly. Specialists in most organized medical care systems do only specialty work; in the United States, they spend a significant percentage of their time in primary medical care. Also, the different systems provide different benefits and methods of payment and copayment. Some deliberately limit services by maintaining waiting lists.

In addition, the different organized systems have very different ratios of physicians-to-population (Table 4). For comparison, current ratios of specialists-to-population for organized systems are applied to the absolute number of each physician specialist class which would be required to serve the population of Massachusetts.

All organized medical care systems would staff Massachusetts with fewer total physicians than currently exist in the state. However, within specifi specialty categories, there are substantial differences among the number of physician specialists which would be provided for the state under various organized medical care plans. There is a ninefold difference in the number of pediatricians which would serve the population under Group Health Association of D.C., compared to the British National Health Service.

Although it is often assumed that organized medical care systems have carefully analyzed their physician manpower needs and have developed optimal physician specialty distributions based on such analyses, observations do not support such assumptions. Rather, it appears that the current distribution of physician specialists in organized medical care systems may reflect the impact of resource constraints and management decisions based on cost containment, rather than any epidemiological or analytic considerations. 21/

LE 4. APPLICATION OF PHYSICIAN RATIOS OF ORGANIZED HEALTH CARE SYSTEMS TO MASSACHUSETTS

ecialty	Massachusetts (1973)	Group Health Puget Sound	Kaiser Portland	Group Health D.C.	British NHS
al physicians	10,086	5,340	5,021	5,109	5,621
. & fam. prac.	1,393	2,132	a/	105	3,251
ernal medicine	2,338	556	1,615	2,371	93
iatrics	646	522	702	1,037	116
matology	144	123	121	121	52
rology	156	30	a/	54	35
chiatry	1,088	187	85	319	290
eral surgery	1,188	400	768	a/	411
rosurgery	96	63	60	a/	23
tetrics & gyn.	566	524	491	572	243
hopedic surgery	359	154	208	a/	249
stic surgery	48	a/	a/	a/	17
thalmology	333	123	151	171	99
laryngology	166	a/	145	a/	87
logy	163	123	151	139	17
sthesiology	512	123	181	a/	313
hology	323	93	105	60	180
iology	537	187	238	160	145
sical med. & rehab.	30	a/	a/	a/	a/

rces: Massachusetts: G.A. Roback, *Distribution of Physicians in the U.S., 973* (Chicago: American Medical Association, 1974); Group Health Puget ound, Kaiser-Portland, Group Health, D.C., personal communications; British HS: World Health Organization, *World Health Statistics Annual, 1970*, (1974).

pecialty not provided in planned system.

* * *

NDINGS

discussion of goals for physician specialty distribution must be placed the context of all other variables which contribute to the health livery system. Only limited gains can be achieved by improving one riable without affecting the others. The state-of-the-art of analyzing ysician manpower needs for any population is primitive. The weak link tween the resources put into the health delivery system and the services nerated by that system as measured by the health status of populations rved, forces the manpower planner to rely on indirect measures of improvent which may result from changes in physician distribution. The most eful information on which to base future physician specialty distribution als is physician productivity data, particularly the amount of time specialists spend delivering non-specialty services. In extreme cases, if a given specialty group uses its unique skills infrequently, a decision to reduce the number of physicians in this specialty can be based on solid evidence.

Caution must be used in applying directly the physician distribution ratios of organized medical care systems to this country. Since organized systems vary among themselves in physician specialty distributions and since each system has different organization and financing features compared to this country's medical care system, direct application of physician specialty distributions is a dubious approach.

Further research is required to advance the state-of-the art of developing physician specialty distribution goals. Analytic approaches based on assessing the population's needs for medical services will require accurate data on the use of specific medical services and a clarification of the efficacy of common medical procedures. Even when the health care needs of populations can be more accurately estimated, value judgments will still be required to determine the most appropriate physician specialty distribution to meet these needs.

FOOTNOTES

Chapter 7

[1] K.L. White, "International Comparisons of Medical Care," Scientific American (August 1975), p. 17; O.W. Anderson, Health Care: Can There be Equity? the United States, Sweden and England (New York: John Wiley and Sons, 1972).

[2] U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, Bureau of Health Resources Development, The Supply of Health Manpower: 1970 Profiles and Projections to 1990, No. (HRA) 75-38 (Washington, D.C.: Government Printing Office, December, 1974); and "Physician Specialty Distribution: 1975," (BHRD/HRA, mimeographed).

[3] A.W. Parker, "The Dimensions of Primary Care: Blueprints for Change," in Primary Care: Where Medicine Fails, ed. S. Andreopoulos (New York: John Wiley and Sons, 1974), p. 27.

[4] Comprehensive Health Planning Association for the Metropolitan Portland Area, Physician Manpower in Oregon Data Book, 1975 (Portland, 1975); R.J. Reitemeier, J.A. Spittell, and R.E. Weeks, "Participation by Internists in Primary Care: Results of a Survey of Mayo Clinic Alumni," Archives of Internal Medicine 135 (1975): 255.

[5] R.J. Greene, Assuring Quality in Medical Practice -- a Public Policy Analysis (Cambridge, Massachusetts: The Ballinger Publishing Co., in press).

[6] The American College of Surgeons and the American Surgical Association, Surgery in the United States: a Summary Report of the Study on Surgical Services for the United States (1975), p. 81; J.G. Scannell et al., "Report of the Inter-Society Commission for Heart Disease Resources: Optimal Resources for Cardiac Surgery; Guidelines for Program Planning and Evaluation," Circulation 52 (November 1975).

[7] J.E. Wennberg, F.J. Fowler, and A. Gittelsohn, "Consumer Characteristics and Physician Choice as Determinants of Health Care Consumption," 1975 (mimeographed).

[8] C.A. Alexander, Physician Manpower in Maryland, 1973 (Baltimore: Universit of Maryland, School of Medicine, 1974), p. 54.

[9] G.A. Roback, Distribution of Physicians in the United States, 1973 (Chicag American Medical Association, 1974).

[10] P. de Vise and D. Dewey, "More Money, More Doctors, Less Care: Metropolit Chicago's Changing Distribution of Physicians, Hospitals, and Population: 1950 to 1970," Chicago, March 1972 (mimeographed).

[11] T. McKeown and C.R. Lowe, "An Introduction to Social Medicine," 2nd ed. (Philadelphia: J.B. Lippincott Co., 1974); W. McDermott, K.W. Deuschle, and C.R. Barnett, "Health Care Experiment at Many Farms," Science 175 (January 7, 1974): 23-31.

[12] J.E. Wennberg and A. Gittelsohn, "Small Area Variations in Health Care Delivery," Science 182 (December 14, 1973): 1102-08; J.E. Wennberg and A. Gittelsohn, "Consumer Characteristics and Physician Choice as Determinants of Health Care Consumption," 1975 (mimeographed); J.E. Wennberg, and A. Gittelsohn, "Health Care Delivery in Maine I: Patterns of Use of Common Surgical Procedures," The Journal of the Maine Medical Association 66, No. 4 (May 1975): 123-30 and 149; J.E. Wennberg, A. Gittelsohn, and D. Soule, "Health Care Delivery in Maine II: Conditions Explaining Hospital Admission," The Journal of the Maine Medical Association 66, No. 11 (October 1975): 255-61 and 269.

[13] U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, The National Ambulatory Medical Care Survey: 1973 Summary, No. (HRA) 76-1772 (Rockville, Md., October, 1975).

[14] H.K. Schonfeld, J.F. Heston, and I.S. Falk, "Numbers of Physicians Require for Primary Medical Care," New England Journal of Medicine 286 (1975): 57

[15] U.S. Department of Health, Education, and Welfare, National Center for Health Statistics, Current Estimates from the Health Interview Survey: United States, July 1965 - June 1966, (1967).

[16] The American College of Surgeons, Surgery in the United States.

[17] U.S. Department of Health, Education, and Welfare, National Institutes of Health, National Heart and Lung Institute, Evaluation of Cardiology Training and Manpower Requirements, edited by F.H. Adams and R.C. Mendenhall, No. (NIH) 74-623 (Springfield, Va: National Technical Information Services, 1974).

[18] Reitemeier, "Participation by Internists in Primary Care."

[19] DHEW, The National Ambulatory Medical Care Survey.

[20] Anderson, Health Care: Can There be Equity?

[21] S. Weiner, "Organization of Health Services - a Comparison of the British National Health Service and Prepaid Group Practice in the United States," (Ph.D. dissertation, Massachusetts Institute of Technology, in preparation).

Chapter 8

MODELING PHYSICIAN SPECIALTY DISTRIBUTIONS

Despite the complexities of determining goals for specialty distribution (see Chapter 7), the investment of federal funds in medical education and services highlights the need for a national policy. A group modeling approach was used by the study group in an attempt to obtain methods for determining: undersupply, oversupply, and optimal distribution of physicians by medical specialty; the interdependence of allocation decisions in physician manpower with other variables such as financing and organization of health care; the additional data needed to make decisions; and the uncertainty among knowledgeable people about appropriate physician specialty distribution.

Since in-depth demographic studies require several years, panels were held to consider the problem of planning optimal specialty distributions of physicians for four states - Arizona, Oregon, Michigan, and Georgia. These states were chosen primarily because they had data on the state distribution of physicians by specialty. The ratio of practicing physicians* per 100,000** population was 100 in Georgia, 138 in Michigan, 154 in Oregon, and 171 in Arizona. 1/

The modeling approach was based on the assumption that a multidisciplinary panel, given all pertinent data, could provide a sample of the range of informed opinion as to what constitutes excess, undersupply, and optimal supply of medical specialists for a given geographic area. The purpose of the panel meetings was not to arrive at a consensus, but to allow panel members to share and discuss criteria and assumptions made in arriving at decisions.

At least one-third of the members of each panel were from the state under consideration. Each panel included a practicing primary care physician, a health planner, specialist physicians, an osteopathic physician, an administrator of a hospital or group practice, and a health manpower analyst. The panels were designed to have nine members each, although some had eight members because of scheduling problems. The panels were led by members of the study staff or by a consultant.

---

*Includes doctors of osteopathy, interns, and residents.
**1974 population estimate.

THE MODELING PROCESS

Before the panel meeting, each panelist received a package of data which included all state, national, and international physician distribution and productivity data now available. Using those data he felt relevant, each participant prepared an optimal specialty distribution for the state with a member of the study staff present to clarify the ground rules of the task, help interpret elements of the data package, and describe for the record the thought process, criteria, and additional data used by each panelist.

Each panel met for one and one-half days in Washington, D.C. in the summer of 1975. For Arizona and Oregon, two panels of eight or nine members were held simultaneously for each state, thus allowing comparison of two sets of results for each state. Although given much pertinent data, most panelis relied on two or three sources of data, value judgments, and in some cases, personal knowledge and experience with the particular state's health care delivery system. They generally relied on a combination of information including some comparative data from other health care systems and productivity data. A few panelists relied heavily on an existing organized medical care system, applying the physician-to-population ratio of that organized system, with some modifications, to the state under consideration.

Panelists first divided all physicians into "contact" physicians (general internists, general pediatricians, general and family practitioners) and specialists (all other physicians). Most panelists based their division on an existing ratio from other medical care delivery systems (prepaid group British National Health Service, Sweden) or on a conviction that the state, and the country, are in need of more contact physicians to improve access to and continuity of medical services. Several panelists decided on the appropriate number of contact physicians by first estimating the current total number of visits to contact physicians in the state from National Ambulatory Medical Care Survey data 2/ and then determining an appropriate number of visits per day or per year per contact physician. Such an approac assumes current demand for contact physician services reflects the true need for such services.

Allocation of specialty physicians was approached by the panelists in severa ways. Generally, it was assumed that under optimal conditions, specialists would confine their practices to referred cases, minimizing the amount of primary care they deliver. However, a few panelists felt that all specialists should do some primary care to remain current with the total needs of patients.

The SOSSUS 3/ data on operative productivity among surgical specialties was used by many panelists to determine their surgical manpower distributions. Allocation of such hospital-based specialties as pathologists, anesthesiologists, and radiologists was based by some panelists on the number of hospita in the state. Value judgments on the efficiency and effectiveness of the services of some specialists were used by some panelists to allocate physicians to specialties such as dermatology and psychiatry. Local practitioners were often influenced by the difficulty of obtaining specialty consultation in their area of the state. During the panel sessions, participants relied on local information furnished by the panelists from each state.

The initial ranges for state specialty distribution developed by the participants individually were used in the panels as a basis for discussion of criteria which can be useful in deciding the "right" physician specialty mix for the state. After each specialty was discussed, the panelists were permitted to change their estimates.

Initially, panelists made their specialty distributions assuming that all other elements in the health care system remain as they are, including the total number of physicians actively practicing medicine in the state. A second round of estimates was made in which each panelist redistributed physicians within a total thought by him to be optimal for that state.

Because so many variables impinge on physician specialty allocation decisions, such issues as the use of paraprofessionals and the organization of medical services must be considered. Panelists analyzed the effect of potential changes in the present system of health care delivery. Each of the system changes was introduced as a single change.

In addition, initial distributions were made without consideration of the geographic distribution of either physicians or population. Based on examination of population and physician distribution maps,* geography as an influence on distribution decisions was considered for each state. The panelists were again given the opportunity to change estimates after examination of geographic factors.

Finally, panelists were asked to discuss which specialties they consider to be either oversupplied or undersupplied and to consider additional data and other approaches to determining specialty distribution which might be useful to policymakers.

RANGE OF OPINION ON OPTIMAL SPECIALTY DISTRIBUTION

To compare results across states, all panel responses, originally given as number of physicians in a specific category, have been converted to ratios of specialists to both population and to total physicians thought by each panelist as suitable to serve that population. In a few cases, local geographic and demographic factors may have influenced panel opinion for a particular specialty in one direction for a given state and in the opposite direction for another. Generally, however, local considerations were not heavily weighed by panelists when they determined optimal specialty distribution.

---

*Maps were developed by the United States Bureau of the Census for this study.

The distribution results in this section were obtained under the following set of conditions:

- Each panelist determined an optimal total number of physicians for the state.
- The different initial specialty distributions were discussed in detail and modifications to the initial distributions were incorporated into the optimal distribution.
- Local geographic considerations which might influence optimal specialty distribution were discussed and panelists could modify distributions. Few modifications were made, however.

Panelists used different total numbers of physicians to staff the state under consideration. This accounts for a wider range of opinion on optimal specialty distribution compared to the range of specialists as percentage of total physicians considered optimal for the state. The use of percent of total physicians does not completely normalize the results, since the optimal ratio of a given specialist category to total physicians varies depending on whether the panelist chose a particularly stringent or generous total supply of physicians with which to work. The results discussed below are based on the assumption that the organization and financing of the health care system remain as they presently are.

CONTACT PHYSICIANS

Figures 1 and 2 show the range of opinion as to the optimal level of contact physicians (the sum of general internists, general pediatricians, and general and family practitioners) for the four states. There was general agreement among panelists that there were insufficient contact physicians in all states, with the possible exception of Michigan, where 50 percent of all physicians are contact physicians. The direction of panel opinion is clear - optimal physician specialty distribution should include at least 50 percent contact physicians in these states. Panelists' decisions to increase contact physicians were based less on hard data than on the shared value judgment that such physicians would increase access to and continuity of medical care.

Although there was agreement that there should be more contact physicians, there were significant differences among the panelists as to how many more. The broad range of opinion of the panelists shows that although there may

FIGURE 1
CONTACT PHYSICIANS PER 100,000 POPULATION

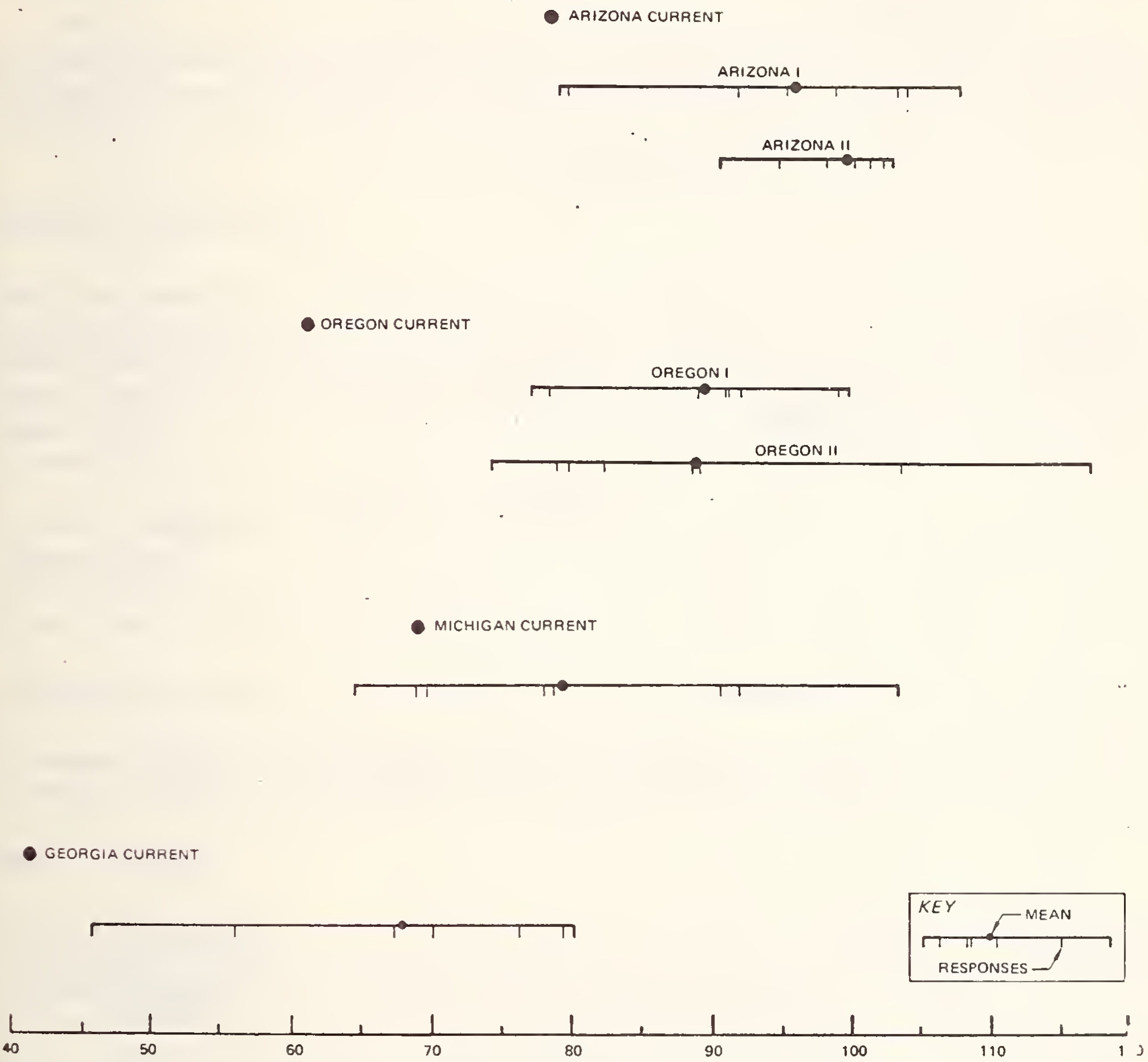
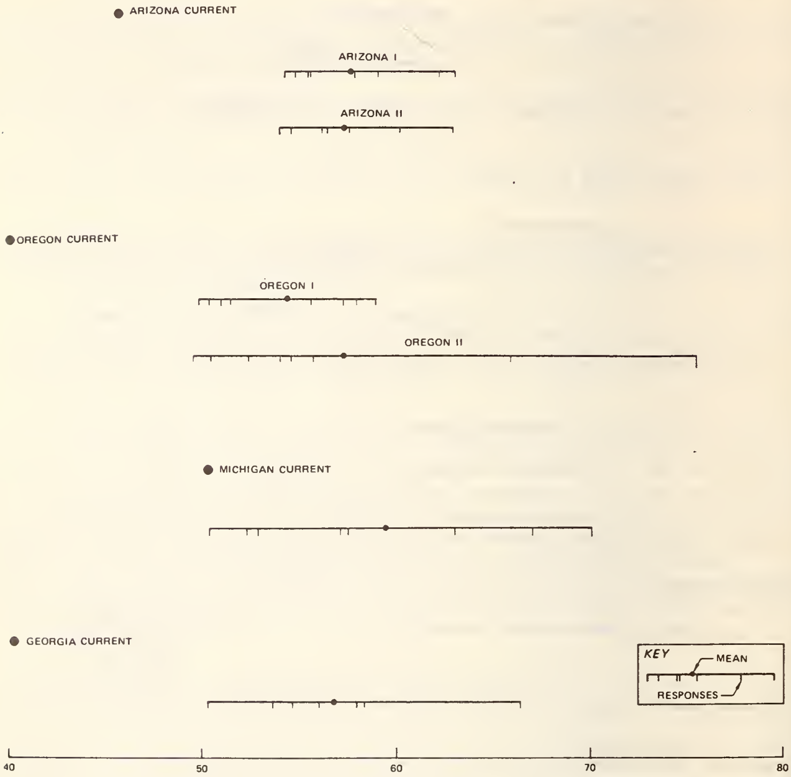


FIGURE 2
PERCENTAGE OF PHYSICIANS WHO ARE CONTACT PHYSICIANS IN AN OPTIMAL SUPPLY



be consensus as to the direction of needed change, it may be difficult to narrow the range of informed opinion on what is the "right" number of physicians in any given category.

Panelists did not suggest optimal ratios of contact physicians (the optimal ratio of general internists to general pediatricians to general and family practitioners), since there were no data on which to base such a ratio.

PHYSICIAN SPECIALTIES

There was general agreement that it was desirable to reduce the number of physicians in some specialties, although opinion varied widely on the optimal number of such specialists in any of the four states. For some other specialties, panelists disagreed on the desirable direction of change. The following considerations influenced decisions for this group of specialties:

- Patient population shared with another specialty(ies); for example, dermatology.
- Questions as to the efficacy of therapy; for example, psychiatry.
- Inadequate data on productivity in the specialty; for example, radiology.
- Presumed high percentage of non-essential medical intervention; for example, plastic surgery.

General Surgery

Of all specialties, there was perhaps the greatest agreement as to the direction of desirable change for general surgery; all panelists reduced the percentage of total physicians in general surgery. The two panelists who increased the general surgeon to population ratio in Oregon and Georgia did so within an increased total number of physicians. The concentration of general surgeons in the four states is about the same as the national average of 14.3 general surgeons per 100,000 population.

Despite general agreement to reduce the current supply of general surgeons, optimal general surgeon to population ratios spanned a range among participants in all six panels from 4.5 to 16 per 100,000 population and from two to nine percent of total physicians.

In reaching the consensus that the four states are oversupplied with general surgeons, the panelists relied heavily on productivity data 4/ which show that the average general surgeon operates approximately 3.5 times per week. The Oregon panel had additional productivity data showing that general surgeons in that state spend about 20 percent of their time in the delivery of primary care. Another consideration which influenced at least some panelists was the impression that too much surgery was being done for marginal indications, in part as a result of the oversupply of general surgeons. A modifying influence on panelists who reduced the number of general surgeons was consideration of the need for general surgeons to treat trauma victims.

Orthopedic Surgery

The range of orthopedic surgeons considered optimal (Figures 3 and 4) is more complex to interpret than those in general surgery since the four states have different concentrations of orthopedic surgeons, ranging from 3.2 per 100,000 population in Michigan to 8 per 100,000 in Oregon; the national average is 4.5 per 100,000 population.

Although the direction of opinion to reduce the current level of orthopedist in Arizona and Oregon is clear, members of the Michigan and Georgia panels were divided on the direction of desirable change. There was a wide range of opinion among all panelists as to the optimal level of orthopedic surgeon for each state.

Many of the Arizona and Oregon panelists based their decisions to reduce the number of orthopedic surgeons on productivity data 5/ which show the operative workload of orthopedists to be low; an average of 175 operations per year nationally. A competing consideration was the higher-than average death rate in these states from motor vehicle accidents.

Ophthalmology

The range of ophthalmologists considered optimal for the four states is another example of consensus on the direction of change thought desirable. All panelists for Oregon and Arizona substantially decreased the number of ophthalmologists; the current concentration of 6.3 ophthalmologists per 100,000 population in both Oregon and Arizona is above the national average of 4.6 per 100,000 population. Even though Michigan and Georgia have fewer than average ophthalmologists, most panelists reduced the level further. Only one panelist increased the total physicians allocated to ophthalmology in the four states.

Again, many panelists based their decision to reduce ophthalmologists on operative productivity data, 6/ which show that the average ophthalmologist in this country operates 83 times per year, compared to 171 operations per year for the average surgical specialist. There was also general agreement that eye refraction consumes an inappropriate amount of ophthalmologists' time and might more efficiently be done by optometrists working with ophthalmologists.

FIGURE 3
ORTHOPEDISTS PER 100,000 POPULATION

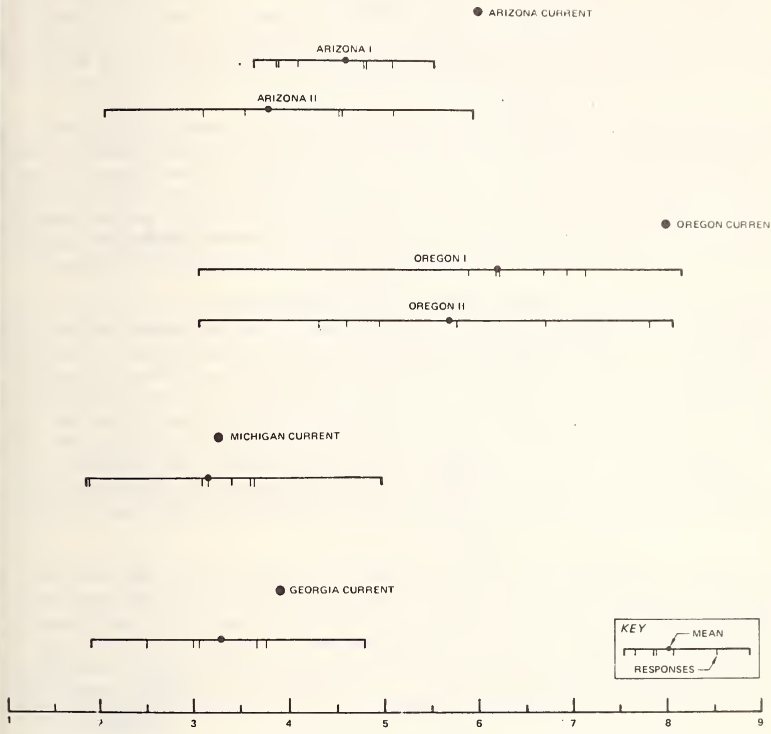
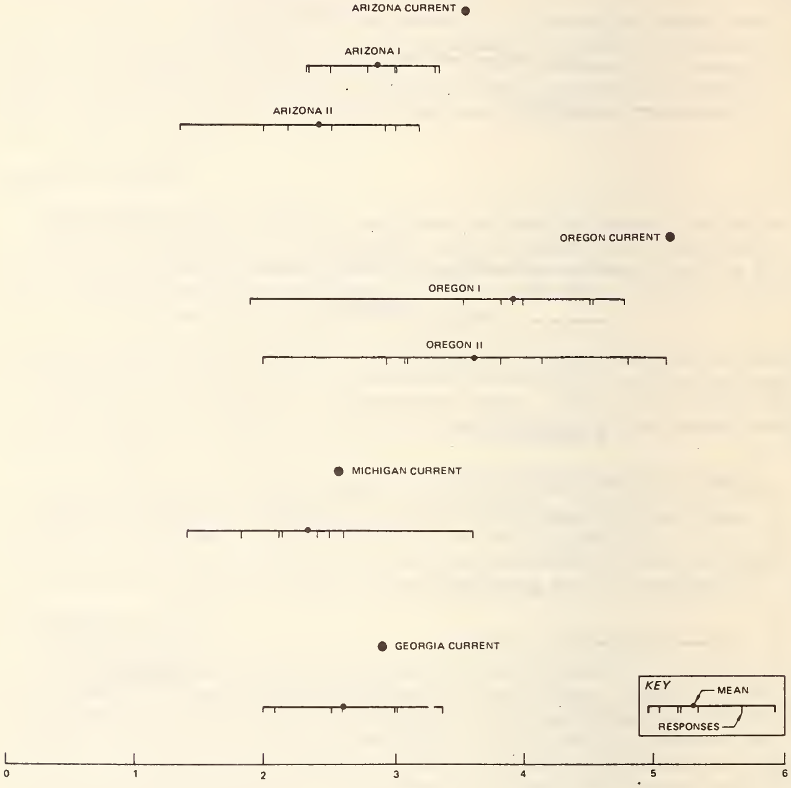


FIGURE 4
PERCENTAGE OF PHYSICIANS WHO ARE ORTHOPEDISTS IN AN OPTIMAL SUPPLY



Obstetrics and Gynecology

The current distribution of obstetricians and gynecologists is approximately 9 per 100,000 population in Michigan, Georgia, and Oregon, and 10.3 per 100,000 in Arizona, compared to a national average of 8.8 per 100,000 population. The birth rates in these states in 1973 were 13.9, 15.6, 17.8, and 18.4 for Oregon, Michigan, Georgia, and Arizona respectively, compared to the national birth rate of 14.9 per 1,000 population.

The two Arizona panels differed considerably as to the optimal number of obstetricians and gynecologists for that state. Participants in Arizona Panel I would lower or maintain the current level of obstetricians and gynecologists; opinion was almost evenly divided in Arizona Panel II. Opinion on the optimal level of obstetricians and gynecologists on the Georgia, Michigan, and both Oregon panels ranged from the current level to significant reductions in this specialty.

Again, participants relied heavily on productivity data 7/ which show that the average operative workload (including vaginal delivery as an operative procedure) for obstetricians and gynecologists nationally is 209 procedures per year. Local considerations were discussed among panelists, particularly in Arizona where the reported maternal mortality rate is high (22.6 and 73.9 for white and non-white mothers respectively, compared to 15.5 and 58.3 per 100,000 live births nationally for white and non-white mothers). The difference of opinion among the Arizona panelists reflects the uncertainty among participants whether simply increasing the numbers of obstetricians and gynecologists would reduce the state's maternal mortality rate.

Obstetrics and gynecology is an example of a specialty which shares its target patient population with other specialties. The panelists discussed the question of whether all babies should be delivered by obstetricians as opposed to, for example, general practitioners. Very different optimal levels for obstetricians and gynecologists would be reached if these specialists served as consultants to other physicians in difficult deliveries, as opposed to performing all deliveries themselves.

Otolaryngology

Except in Georgia, there was a wide range of opinion among panelists on the absolute optimal distribution of otolaryngologists (Figures 5 and 6). It is of interest that for Michigan, which has the same concentration of otolaryngologists per population as does Georgia (1.7 as compared to the national average of 2.3 per 100,000 population), the range of opinion among panelists was very wide. In each of the four states there were some panelists who would increase and some who would decrease the level of otolaryngologists.

FIGURE 5
OTOLARYNGOLOGISTS PER 100,000 POPULATION

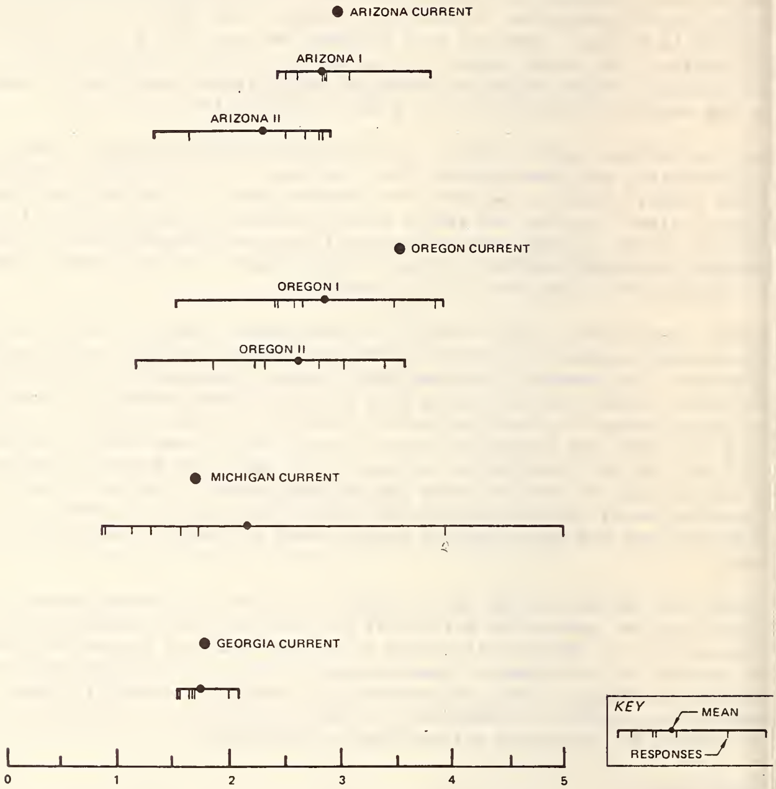
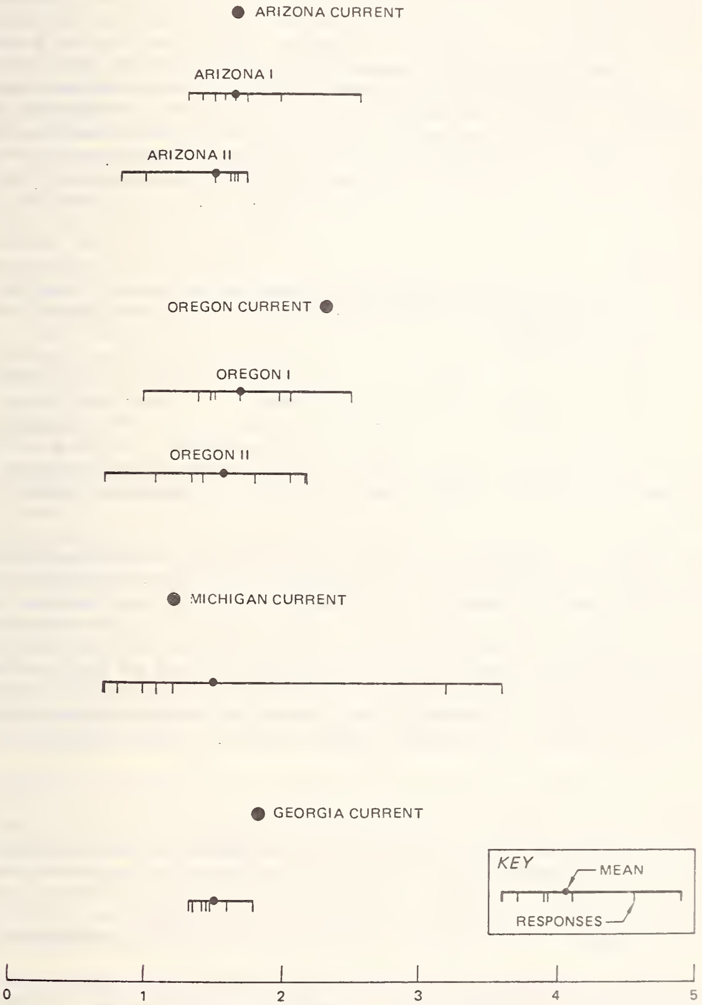


FIGURE 6
PERCENTAGE OF PHYSICIANS WHO ARE OTOLARYNGOLOGISTS IN AN OPTIMAL SUPPLY



Panelists used several different criteria to estimate the optimal number of otolaryngologists in their respective states. Although otolaryngologists have a higher than average operative workload (184 compared to 171 operations per year per surgeon), most of their workload - about one million procedures per year - is made up of tonsillectomies and adenoidectomies. 8/ Many panelists expressed concern that so much operative time was being spent on tonsillectomies, the value of which is being questioned in many clinical circles. Other panelists indicated that there are no data about the nonoperative workload of this, and most other surgical specialties, and considered the office practice of otolaryngologists an important contribution to medical care.

Anesthesiology

The concentration of anesthesiologists in these states varies from 3.8 in Georgia to 7.3 per 100,000 population in Oregon; the national average is 5.2 per 100,000 population.

With the exception of one participant, the Oregon panelists reduced the optimal number of anesthesiologists significantly. On the other hand, four of the Arizona panelists increased the number of anesthesiologists in that state, which now has 6.4 per 100,000 population. Opinion on the Michigan and Georgia panels was equally divided among those who would increase and those who would decrease the number of anesthesiologists in those states.

Anesthesiology is a complex specialty to consider, since much anesthesia in this country is delivered by nurse anesthetists. The panelists agreed that the use of nurse anesthetists is necessary to cover the surgical workload, and discussed their supervision. Some panelists reduced the number of anesthesiologists in the optimal physician distribution to correspond to the reduced surgical workload which would be realized if the total number of surgical specialists were reduced. Several of the participants who increased the number of anesthesiologists did so because they calculated their optimal numbers based on the current number of acute care hospitals in their state.

Radiology

Most panelists for the four states reduced the number of radiologists (diagnostic and therapeutic radiologists were considered together) from their current levels. Agreement on the direction of desired change was particularly clear for Georgia, which has 5.3 radiologists per 100,000 population compared to the national average of 6.2 per 100,000 population.

Many panelists interpreted the recent study of the American College of Radiology as indicating that there are sufficient radiologists in this country. 9/ Although some opinion was expressed that an increase in the number of contact physicians might increase the workload in diagnostic radiology, the reduction of surgical workloads which might follow the reduction of surgical specialists was thought to counterbalance this effect.

Psychiatry

There was great variation in opinion among panelists considering the optimal levels of psychiatrists in the four states (Figures 7 and 8). The results of the two Oregon panels show the extent to which two similar groups exposed to the same data can differ in their ranges of optimal specialty distribution. Although Oregon has only 7.5 psychiatrists per 100,000 population compared to the national average of 9.5 per 100,000, all members of Oregon Panel II reduced substantially the numbers of psychiatrists. On the other hand, members of Oregon Panel I either increased or maintained the current level of psychiatrists for that state. A broad range of opinion was represented among panelists considering the other three states, although most panelists opted for levels considerably below the national average. The wide range of opinion as to the optimal distribution of psychiatrists reflects both the absence of any information on the productivity of psychiatrists and the uncertainty among panelists as to the efficacy of psychotherapy.

Dermatology

There was considerable discussion about this specialty, focusing in part on the fact that since dermatologists treat only a portion of patients with skin disease it is difficult to define the patient population better served by dermatologists than by contact physicians. Because of the lack of productivity data on this medical specialty, estimates of optimal numbers of dermatologists were based on value judgments and comparative ratios of dermatologists to population in this country, other countries, and prepaid group practices.

The narrow range of opinion among panelists on the optimal concentration of dermatologists probably relates more to the small absolute number of dermatologists practicing in these states (for example, 59 in Oregon) than to any consensus as to the "right" distribution for this specialty.

The difference between the two Oregon panels is of interest since all members of Oregon Panel II significantly reduced this specialty to achieve an optimal distribution; opinion on Oregon Panel I was split between those who would increase and those who would decrease this specialty. There was similar lack of agreement among the Michigan panelists.

OTHER INFLUENCES ON PHYSICIAN DISTRIBUTION

The panelists agreed that optimal physician specialty distribution can not be considered apart from other elements in the health delivery system.

FIGURE 7
PSYCHIATRISTS PER 100,000 POPULATION

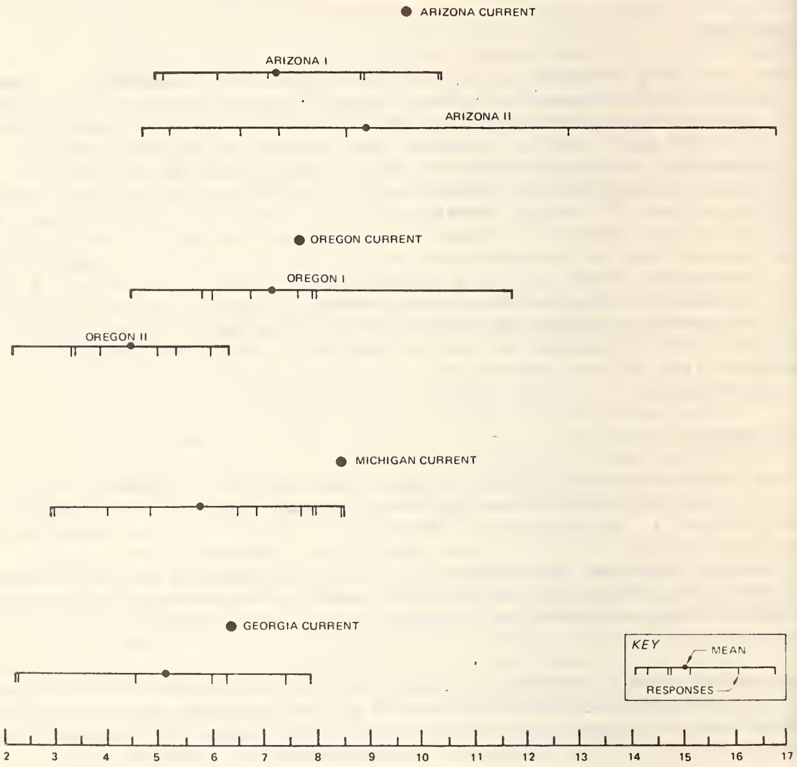
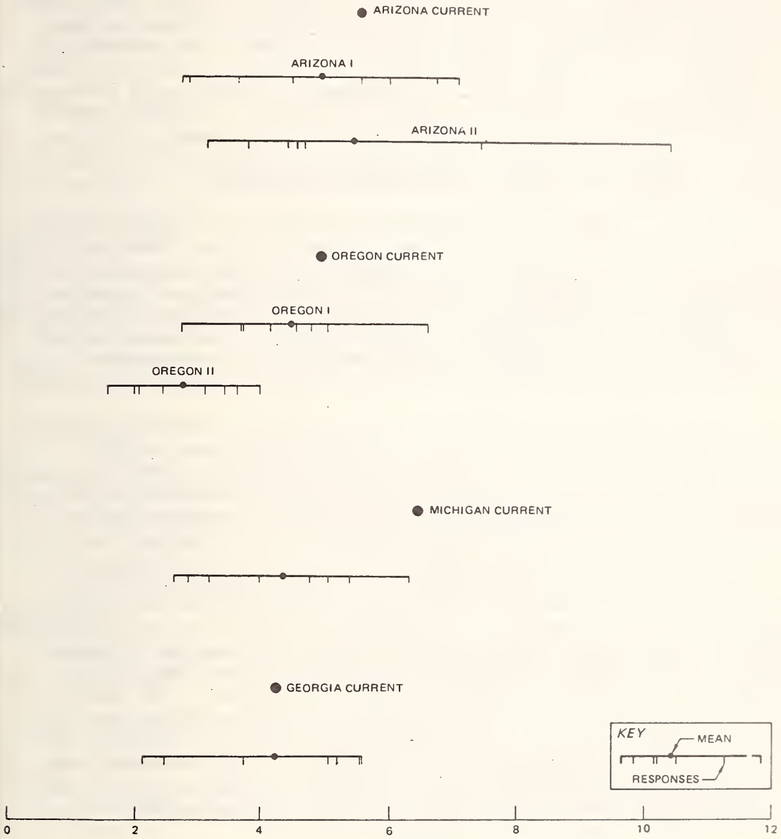


FIGURE 8
PERCENTAGE OF PHYSICIANS WHO ARE PSYCHIATRISTS IN AN OPTIMAL SUPPLY



Panelists were asked to explore the impact of changes in other aspects of the health delivery system on the optimal specialty distributions they had developed. Specifically, they were asked to explore the desirability of substituting allied health professionals, such as physician assistants, nurse practitioners, nurse midwives, and nurse anesthetists, for physicians in each specialty category, and the effect of increased financial access to medical care on the need for physicians in each specialty.

Substitution of Allied Health Professionals for Physicians

The panelists agreed that it was difficult to estimate the extent to which allied health professionals could reduce the need for physicians, and cited lack of data on the cost effectiveness and substitutability of allied health professionals. A few panelists favored direct substitution of specific health professionals for physicians. For example, several panelists believed that increased use of nurse midwives could substantially reduce the need for obstetricians, and several others believed that trained surgeons' assistants could replace physicians who would otherwise assist at surgery.

Most panelists agreed that certain physician specialist functions could be delegated, under appropriate supervision, to existing groups of non-physician professionals. Two examples are the delegation by ophthalmologists of most routine eye refraction to optometrists, and an increase in the delegation of therapy currently done by psychiatrists to psychologists, social workers, and other mental health workers.

With the exception of the examples given above, most panelists believed that non-physician professionals could not effectively substitute for physicians. Panelists suggested that although increased use of allied health professionals might broaden the scope and increase the quality of medical services, the need for supervision would militate against reducing the optimal number of physicians in most specialty categories. The panelists believed that the short-term cost implications of increasing the use of allied health professionals would add to the total costs of medical care. Members of the Michigan panel agreed, and other panelists observed, that a policy of training allied health professionals on a large scale in the near future would be inconsistent with the recent national policy of training more physicians in this country.

Increased Financial Access to Medical Care

The panelists were asked to estimate the effect of increased financial access to medical care on the need for physicians in each medical specialty. The specific task was to consider the impact of a Canadian-type national health insurance (full coverage of inpatient and outpatient acute medical services) on the need for physician specialists in the four states. Except for some panelists who increased slightly the number of contact physicians, most did not significantly change their optimal distribution. Some participants were influenced by one study 10/ which shows no increase in total physician use in Quebec after the introduction of national health insurance, but rather a redistribution of the use of physician services; lower-income people used more and higher income people used fewer services.

ADEQUACY OF CURRENT DATA FOR DEVELOPMENT OF PHYSICIAN MANPOWER POLICY

The panelists agreed that the current data on which they could base their estimates of optimal physician specialty distribution are inadequate. Panelists felt the following data would be helpful:

Productivity Data

Additional information on the productivity of surgical specialists outside the operating room would be useful. There was agreement that more productivity data were needed for non-surgical specialties. Some of this data will become available within the next few years through the log diary studies of all medical surgical specialties underway at the University of Southern California. 11/

Outcome Data

In those specialties where the efficacy of treatment was questioned (for example, psychiatry and otolaryngology), productivity data would not be helpful to the panelists in determining the appropriate number of specialists for a given geographic area. Some panelists indicated the need for outcome data on the efficacy of treatment for specialties of this type.

Unmet Needs

Some panelists indicated it would be useful to have survey data on the unmet health needs of the population under consideration.

Data on Accessibility to Physician Specialists

Recent surveys of physicians in Oregon and Georgia produced information on the waiting time to obtain appointments with physicians in each specialty. Participants in panels for these states found this information useful.

* * *

FINDINGS

There is a wide range of informed opinion among panelists as to the optimal distribution of physicians for any given medical specialty. However, for a few physician categories such as general surgeons and contact physicians, panelists agreed on the desirable direction of change, even though there was a wide spectrum of opinion as to the absolute optimal level of physici in these categories. The results of these panels show that the state-of-the-art of estimating a desirable specialty distribution for a given geographic area can point the direction for desirable change, but do not permit determination of precise numbers.

Panelists agreed on the direction of desirable change from the status quo in those specialties for which there is evidence of low productivity. The specialties for which the panelists had the most difficulty in determining optimal physician distributions were those in which the efficacy of therapy was uncertain and those which shared a target patient populatio with another category of physician.

Even in those specialties for which there was agreement on the desirable direction of change, the opinions of the panelists reflect individual uncertainty. The modeling process was used to demonstrate the difficulty in determining optimal goals for physician specialty mix, not to provide the "right" answer as to the optimal number of any given specialty needed in a state of the country. It is clear that other groups using the same set of data available to these panelists might develop a very different pattern of optimal specialty distributions.

Panelists agreed that additional information on physician productivity in all specialties would increase the level of confidence with which they could make allocation decisions. However, the complex interaction among physician manpower allocation decisions and policy decisions in other elements of the health care system and the tenuous relationship between access to physician services and health status make determination of any specialty distribution a subjective process.

REFERENCES

Chapter 8

[1] State of Arizona, Arizona State Medical Directory, 1974-75 (Phoenix: Board of Medical Examiners of the State of Arizona); Arizona Osteopathic Medical Association, The Arizona Osteopathic Medical Association Directory, 1974 (Phoenix, 1974); Comprehensive Health Planning Association for the Metropolitan Portland Area, Physician Manpower Oregon Data Book, 1975 (Portland, 1975); Michigan Cooperative Health Information System, "Survey of Licensed Health Occupations" (Lansing: Michigan Department of Public Health, 1974, mimeographed); Medical Association of Georgia, "Survey of Practicing Physicians," personal communication; G. A. Roback, Distribution of Physicians in the United States (Chicago: American Medical Association, 1974).

[2] U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, The National Ambulatory Medical Care Survey: 1973 Summary, No. (HRA) 76-1772 (Rockville, Md., October 1975).

[3] The American College of Surgeons and The American Surgical Association, Surgery in the United States: A Summary Report of the Study on Surgical Services for the United States (1975).

[4] Ibid., p. 62.

[5] Ibid., p. 61.

[6] Ibid.

[7] Ibid.

[8] Ibid., pp. 50 and 61.

[9] *Report of the ACR Task Force on Manpower and Facilities*, by Paul A. Riemenshneider, Chairman (Bethesda, Md: American College of Radiology, February 20, 1975).

[10] P.E. Enterline, et al., "The Distribution of Medical Services Before and After 'Free' Medical Care -- The Quebec Experience," *New England Journal of Medicine*, 289 (November 29, 1973): 1174-78.

Chapter 9

PHYSICIAN CHOICE OF SPECIALTY AND GEOGRAPHIC LOCATION: A SURVEY OF THE LITERATURE

There is extensive literature reporting on factors which influence physician choice of specialty and geographic location. Many disciplines contribute to the research -- sociology, psychology, education, and more recently, economics, although no comprehensive model has been designed to assess the relative importance of all the factors identified in the literature. This is partly because so many subjective factors must be weighed, and partly because there is no multidisciplinary theory about choice determinants.

Since most of the literature considers specialty choice and location choice as independent processes and ignores their interrelationships, they are reviewed separately. Primary emphasis is given to the discussion on economic determinants and to factors which seem to encourage the choice of a contact specialty since that is of greater relevance to the congressional charge. Only those factors amenable to the influence of public policy are considered in any detail.

DETERMINANTS OF SPECIALTY CHOICE

Since several comprehensive reviews of the literature 1/ on specialty choice have appeared recently, this section provides a brief and selective survey of the literature in five parts: economic determinants, social and demographic determinants, personality determinants, the influence of the medical school environment, and the influence of graduate medical training. The literature on academic ability determinants has been examined, but the findings are omitted since they are not relevant to the choice of a contact specialty versus a referral specialty.

Numerous factors have been identified as influencing specialty choice, but most research analyzes the influence of only one or two determinants and with a few important exceptions, considers the decision to specialize, per se, in contrast to the decision to become a general practitioner in the traditional sense of beginning practice immediately after an internship.

This is true even though the number of physicians identifying themselves as general practitioners has declined steadily in recent years, dropping from 75,000 in 1960 to less than 54,000 by the end of 1973. The number of general practitioners in graduate training programs in the United States as of December 30, 1973, represented only three percent of the total house staff on duty. 2/ Applicability of many of these research findings for social policy is severely limited since they tend to focus on general practitioners. Training and practice of general practitioners are not comparable to training and practice of family practitioners, internists, or pediatricians. Thus, those few studies which emphasize the contact and referral specialty dichotom that predominates today are incorporated.

Another general problem with the literature on specialty choice is that most studies examine a small unrepresentative sample at only one or several medica schools. Sampling techniques and control groups are rarely used. Bias may be implicit in the survey methodology; students may be questioned about thei choice of specialty only during their first year of medical school without corroboration of their actual selection when they begin practice. Or, more commonly, the retrospective design of most studies may bias the results towar the final specialty choice. Finally, the relationship among different types of variables has not been analyzed, making it difficult to assess the relativ importance of these various factors in explaining specialty choice. As a result, there is no consensus on which of these factors is most influential

Several studies have been made to determine when physicians tend to make decisions about where to practice and which specialty they will practice. Studies have focused on the stability of that decision, and the direction of change between specialties. Until recently, there has been little research on the timing and stability of decisions to go into primary care (family practitioners, internists, and pediatricians) as opposed to referral specialists; most studies concentrate on the loss of general practitioners and not on the loss (or gain) of primary care practitioners.

A longitudinal study 3/ of two successive medical classes (1972 and 1973) examined the stability of the students' preference for family practice, internal medicine, pediatrics, psychiatry, and surgery during the course of their undergraduate medical education. Almost three-fourths of all freshmen changed their career choice between their freshman and senior years regardles of how certain they indicated they were when they chose their original specialty choice. The exception was family practice; the majority of those who chose family practice as a specialty choice did not change their minds. During the four years of medical school, internal medicine gained the most students and pediatrics and psychiatry lost the most students.

By comparing specialty selection made during the freshman year of medical school with the specialty preference of senior medical students, graduate trainees, and practicing physicians, several investigators have concluded that specialty choices made during the early period of medical education are subject to change during medical training. 4/ Changes in specialty choice are also made during residency training. For example, in 1974, 120 out of 2,671 family practice residents left for training in other specialties, 5/ although this is a very small percentage of the total.

It is estimated that about 50 to 75 percent of physicians do not firmly commit themselves to a specialty until at least the senior year of medical school. 6/ In general, studies indicate that physicians make their final choice of specialty at any time from entry to medical school until many years after entering practice; the initial specialty choice will probably change, particularly if made during early training. 7/

Economic Determinants

Research on economic determinants of specialty choice is based on the assumption that income maximization is the decisive factor, and that new physicians will choose whichever specialty will generate the greatest financial returns over the course of their working years relative to the costs incurred in obtaining that training. To estimate the probable return, the present values of lifetime earnings in different specialties were calculated. Personal wealth and the time spent in training may also be taken into consideration.*

Sloan investigated whether medical school graduates responded to income differences in choosing among specialties using as explanatory variables lifetime earnings, the number of residencies offered, and the total number of foreign medical graduates in each specialty. 8/ Data on physician incomes were obtained from physicians' earnings reported to Medical Economics for 1955, 1959, and 1965. The effect of lifetime earnings on specialty choice was significant but small, perhaps due, in part, to the use of historical age earnings profiles** which tend to understate the future returns to recent specialty graduates. Future expected income rather than actual past income for practitioners of certain age groups may be the relevant variable by which income incentives influence specialty choice, if at all.

---

*To calculate these returns, it is necessary first to estimate the number of years a physician anticipates practicing medicine, and second, what his or her income is likely to be in each of those years. To account for the fact that income to be earned in the future has a lower value than income to be earned in a current year, a discount rate is applied to these estimated annual earnings to adjust for this factor. The sum of these discounted annual income levels is known as the "present value of future lifetime earnings." For a discussion of the concept of discounted lifetime earnings, see "Economic Incentives of Physicians' Choices of Specialties," Paper No. 7 in Physician Specialty Choice Series, Human Resources Research Center, University of Southern California, Los Angeles, 1975, pp. 5-12.

**Use of historical age earnings profiles means that actual past earnings associated with physicians of different ages are used to predict future earning levels of physicians with the same ages.

Among the specialties, returns to training were lower for certain contact specialties such as pediatrics and internal medicine, than for such referral specialties as radiology, orthopedic surgery, ophthalmology, and anesthesiology. These differences also are reflected in the internal rates of return specialty training in each of these fields.* Other market information, such as the number of physicians in a particular specialty seeking employment relative to the number of vacancies in that specialty, was not considered, even though such information may also be an indication of the monetary benefits to be derived from a medical student's investing in a particular type of specialty training. If these results are compared to the proportion of residency positions filled by USMGs in each specialty during 1966, lifetime earnings appear to be a minor factor in the decision to specialize; spaces were available in the highest earning specialties for USMGs who chose residency training elsewhere, and as many USMGs elected residency training in internal medicine as elected general surgery positions.

The AMA publication, Measuring Physician Manpower, 9/ includes an analysis similar to that done by Sloan, but uses physician income data from the AMA's 1971 Periodic Survey of Physicians. When unadjusted for hours worked, pediatrics and psychiatry showed negative rates of return to specialty training compared to general practice; internal medicine and anesthesiology showed relatively low returns; obstetrics and gynecology and radiology showed positive rates of return; and surgery obtained the highest return, despite the many years of residency training required (Table 1). The additional income, if any, earned by pediatricians and psychiatrists compare to general practitioners was not great enough to compensate for the costs of additional training; for internists and anesthesiologists, the returns were barely greater than the additional costs. When income was adjusted for hour worked, however, the rates of return to specialty training increased in all specialties except pediatrics, for which it remained unchanged, and in obstetrics and gynecology where the rates of return fell significantly. There was sufficient return on investment to justify continuing graduate training in each specialty except pediatrics.

In a recent study, Hadley 10/ investigated the influence of expected income as well as other institutional and individual variables on a physician's specialty choice. Specialties were grouped into general practice, medical specialties, surgical specialties, other primary specialties (obstetrics and gynecology, pediatrics, and psychiatry), and secondary specialties (radiology, anesthesiology, pathology, and others). Specialty choice was based on a series of comparisons between different specialty groups, using the actual specialty group of an individual physician in 1972 and his specialty preferences in 1960, 1961, and 1965. Data on physician mean net income by specialty and state in 1965 were obtained from the Social

---

*Sloan uses as the internal rate of return that discount rate which equates the present value of lifetime earnings in a specialty with the present value of lifetime earnings in general practice.

TABLE 1. RATES OF RETURN FOR SELECTED SPECIALTIES COMPARED TO GENERAL PRACTICE (1970 income data)

Specialty	Unadjusted for standard number of hours worked (percent return)	Adjusted for a standard number of hours worked (percent return)
Pediatrics a/	Negative	Negative
Psychiatry	Negative	Negative
General practice	0.0	0.0
Medical specialties b/	2.0	6.9
Anesthesiology	3.2	17.4
Obstetrics and gynecology	9.2	5.9
Radiology	9.7	20.2
Surgery c/	12.5	13.8

Source: American Medical Association, Center for Health Services Research and Development, Measuring Physician Manpower: Contributions to a Comprehensive Health Manpower Strategy (Chicago: American Medical Association, 1973) pp. 53 and 55.
a/Includes pediatrics, pediatric allergy, and pediatric cardiology.
b/Includes allergy, cardiovascular disease, gastroenterology, internal medicine, and pulmonary diseases.
c/Includes general surgery, ophthalmology, neurological surgery, orthopedic surgery, otolaryngology, plastic surgery, thoracic surgery, and urology.

Security Administration. Income was both positive and statistically significant for medical specialties only. Hadley concluded that relative differences in future expected earnings are not important in a physician's specialty choice.

The research done by Sloan and others on the relationship between specialty choice and future earnings must be evaluated in light of recent changes in physician earnings, including those of the house staff, and greater uniformity among the specialties in the number of years spent in residency training. Since the mid-1960s, incomes of all physicians have increased, with the average net income for all specialties about $50,000 in 1973. Average income by specialty ranged from $40,000 in psychiatry to $59,000 in surgery, other high-income specialties were obstetrics and gynecology ($57,000) and anesthesiology ($52,000). 11/ In all specialties, many physician's net incomes far exceeded these average figures. And, even though both surgery and anesthesiology had many residency positions available, these specialties tended to attract foreign medical graduates since not enough graduates of American medical schools applied to fill the available positions. 12/

Furthermore, the rates of return calculated by Sloan would tend to be less dramatic under current conditions since resident salaries for the academic year 1973-1974 increased to an average of $11,360. 13/ These salary levels markedly reduce the actual amount of earnings foregone when a physician elects to enroll in a residency program rather than to begin a practice. Also, there has been a trend toward uniformity in the length of postgraduate training in recent years: three years for family practice, pediatrics, general internal medicine, and radiology; four years of general surgery and obstetrics and gynecology. Even for those physicians who elect subspecialty training, the availability of adequate financial support lessens the amount of earnings foregone.

Social and Demographic Influences

Specialty choice can be related to many social and demographic factors including age, sex, family background and socio-economic status, marital status, and size of home community. 14/ Most studies attempt to link those factors to the choice of either general or specialty practice with little investigation of the choice of a contact or a referral specialty.

Historically, sex has been a stratifying variable in the choice of specialty. A larger proportion of women than men have entered pediatrics and psychiatry. There is some evidence that in the past women may have chosen a primary care specialty either to reduce the conflict between accepting the traditional role of women and their professional goals 15/ or because of discriminatory practices by medical schools, and hospital internship and residency selection committees. 16/ Income-related incentives did not appear to be an important factor in their choice of specialty. More recently, women have begun to enter internal medicine; current data show that the same percentage of total women medical graduates tend to enter internal medicine as do men. With the percentage of women entering medical school having increased from nine percent in 1964-65 to 22 percent in 1974-75 17/ barriers against women in some specialties have undoubtedly broken down, and it can be assumed that women physicians will begin to choose among all specialties.

Personality Determinants

Literature about personality influences on specialty choice assumes they are the prime factor in the choice. It is difficult to compare studies or validate results since a variety of testing instruments and methods are used. The characteristics of those entering surgery, academic medicine, and psychiatry have been the most firmly established. 18/ According to these studies, internists and pediatricians are not similar in personality.

Effect of Undergraduate Medical Education on Specialty Choice

Faculty influence, medical school admission policies, medical school environment, medical school ownership, and research expenditures may all influence specialty choice during undergraduate medical education. However, most of the research in this area was completed in the 1960s, at a time when most medical schools were preoccupied with expanding their biomedical and clinical research capacities; the results, therefore, may not be representative of medical schools in the 1970s, many of which have a greater interest in community medicine and primary care than in earlier years. It should also be noted that students who apply to public medical schools may differ from those who apply to private schools, and in almost all instances, the effect of individual characteristics on specialty choice are not separated out from the effects of undergraduate medical education.

The few studies concerned with the effect of undergraduate medical education on the choice of internal medicine or pediatrics as a specialty indicate that a preference for internal medicine increases during medical school. 19/ Data about a preference for pediatrics are somewhat less consistent. Wasserman 20/ found that the choice remained stable during medical school; Oates and Feldman 21/ reported that 7.2 percent of the freshmen and 15.4 percent of the seniors preferred pediatrics as a specialty. In his examination of influences on specialty choice, Coker 22/ reported that more than half of the 2,676 students he surveyed said faculty influence was the single most important influence on their earlier choice.

Faculty influence appeared to affect the type of internship selected. Students who entered straight internships, internships in primary teaching hospitals, and who had high MCAT scores, reportedly received more encouragement than students who entered rotating internships, internships in other types of teaching hospitals, and who had low MCAT scores. 23/

Data from an analysis of house officer activities conducted in 96 hospitals by the Institute of Medicine for this study illustrate the importance of faculty influence on a physician's choice of specialty (Table 2). When 3,569 graduates of United States medical schools ranked the importance of seven factors in determining their first choice of specialty, almost half (47 percent) considered the influence of a faculty member as one of the three most important factors in their choice of specialty. A strong interest in the area of specialization was considered as being of either first, second, or third importance by 94 percent of the respondents, and expected life style was ranked by a third of those answering as one of the three most important factors in their specialty choice.

Although the research relating family practice as a specialty choice to undergraduate medical education is sparse, the research findings of the various studies tend to agree. Students planning to become family practitioners were more likely to have attended public colleges as undergraduate students; those interested in other specialties enrolled in private universities. 24/ The ownership of the school is also an important influence on the choice of family medicine as a specialty at the medical school level Recently released data by the American Academy of Family Physicians 25/ found that in 1975, 63 of 67 public medical schools had departments or

TABLE 2. FACTORS INFLUENCING THE FIRST SPECIALTY CHOICE OF 3,569 HOUSE OFFICER GRADUATES OF MEDICAL SCHOOLS IN THE UNITED STATES (1975)

Factor	Most important factor (responses)	One of three most important factors (responses)	One of thre most importa factors (percent)
Interest in area of specialization	3,031	3,363	47
Influence of faculty member	113	1,678	94
Life style	148	1,219	34
Need for more physicians practicing specialty	76	962	27
Availability of training positions	21	398	11
Research opportunities	77	307	9
Influence of family member or friend	47	585	16
Other	39	135	4

SOURCE: Institute of Medicine field data.

divisions of family practice;* 22 percent of the graduates of the 63 institutions applied for family practice residencies in 1975 compared to only 15 percent of the graduates of four other schools. In most cases, these percentages were higher than in the previous year. This suggests that there may be some relationship between exposure to family medicine at the undergraduate medical education level and the decision to become a family physician, even though the full extent of this relationship cannot be measured by these data alone. Another important piece of information is how many of the graduates of the 67 institutions elected residencies in the other contact specialties, and how much of their choice can be attributed to their participation in a family medicine program. Furthermore, since all the institutions under discussion are public schools, dmission may be limited to residents of the states involved, possibly kewing the character of the student body. Finally, these data do not ermit an analysis of the "chicken and egg" phenomenon. It may be that tudents interested in family practice careers select institutions with amily medicine programs, or, that schools may develop departments of amily medicine because students who are applying for admission to that chool are interested in that career. Nevertheless, aggregate data do uggest that exposure to family medicine in medical school has some reationship to the subsequent choice of a family practice residency.

---

*There were 13 private medical schools with divisions or departments of family practice in 1974 and 20 (out of 40) in 1975.

n a study of medical graduates of 70 medical schools during six time eriods during 1940 to 1967, Consad Corporation 26/ found the proportion of edical school graduates who entered primary care practice varied signiicantly between medical schools and within a particular medical school ver time. The institutional variables* chosen to characterize the medical chool environment accounted for a small percentage of the observed ariance in the choice of primary versus non-primary care specialties.

eneral practice, family practice, internal medicine, pediatrics, and bstetrics and gynecology were defined as primary care specialties in the nalyses. However, when internal medicine was not classified as one of the rimary care specialties, the variance in the choice of specialty explained y the measured institutional variables increased. Therefore, internal edicine is not similarly affected by the institutional variables employed s are the other primary care specialties. The study considered that grouping nternal medicine with general practice, family medicine, pediatrics, and ven obstetrics and gynecology is not a natural classification for variables hich affect choice.

ffect of Graduate Medical Education on Specialty Choice

he effect of graduate medical education on specialty choice has not been xamined in depth. Since the graduate education environment has changed onsiderably since 1960 and is still changing, the applicability of the few vailable studies to current policy formulations is problematic. The most igorous analysis of the graduate training environment of a university-ffiliated hospital and a suburban community was made by Mumford 27/ in 1970, ut only internship programs in 1958 were observed and documented. The tudy concluded that the typical university-affiliated hospital produced

---

hese variables were total faculty; research budget/full-time Ph.D./M.D. atio; Flexner faculty to student ratio; Flexner estimated budget expeniture; Flexner total faculty; Flexner total students; percent of students ith research fellowships and clinical externships; percentages of graduates ntering the fields of general practice, internal medicine, obstetrics/ynecology, pediatrics, surgery, and internal medicine; MCAT scores in verbal bility, quantitative ability, modern society, and science achievement; nd source of support (tax or private).

more specialists and the community hospital more general practitioners, in part due to the particular hospital values they transferred to their interns

Whether or not graduate medical education reinforces previously established interests or is a primary factor in specialty choice has not been establishe As the terminal stage in a succession of selection points, it is difficult to distinguish the effects of graduate medical education from those of personality and background traits. Although final specialty choices often are made during graduate training, the determinants of specialty choice at this stage are unknown.

There is some indication that graduate medical training can influence specialty choice by its programmatic content. The lack of training opportunities in ambulatory care has received considerable attention as a negativ factor in encouraging physicians to select contact medicine. Petersdorf 28/ has described the process by which departments of internal medicine have developed strong programs in medical subspecialties at the expense of faculty in general internal medicine. The result is that a large proportion of internal medicine residents enter subspecialty practice. The examination policies of specialty boards, particularly that of the American Board of Internal Medicine, have contributed to the supply of subspecialists by establishing the subspecialty certification system, 29/ which tends to encourage young physicians to obtain these credentials.

Conclusion

It is clear from the literature that there are many factors which influence each physician's selection of a specialty. Since most physicians are at the high end of the earnings scale, future income in one specialty versus another is probably not a decisive factor. This suggests that influencing the amount of earnings through changes in the level or structure of fees is not likely to effect an increase in the number of contact physicians unless other measures are undertaken as well.

Since it appears that the various factors are related, a comprehensive policy is required, if physician specialty choice is to be influenced. The capability to distinguish individual characteristics from institutional variables has not been developed. Since as many as half of all physicians do not make their final specialty choice until after graduation from medical school, policies directed to offer career alternatives to medical and postgraduate students, such as the presence of role models in contact care specialties, and the funding of medical school courses and residencies in contact care specialties, might provide an opportunity to effect a change in the present distribution of physicians toward more contact specialties.

INFLUENCES ON PHYSICIAN CHOICE OF GEOGRAPHIC LOCATION

Many factors have been identified as influencing a physician's decision to locate his practice in a particular area. Several excellent reviews of this topic have recently been published 30/ and it is not the purpose of this discussion to provide the comprehensive review of the literature found elsewhere. Rather, this section summarizes the major factors which influence physician choice of geographic location, with particular emphasis on those most amenable to change through public policy. The major groupings under which these factors are discussed are economic, prior attachment of the physician to the region, community characteristics, and factors which affect specialists or primary care physicians in different ways.

The number of physicians in a given geographic region at any one time depends on the number of physicians who have settled in that area and the number of more recent arrivals, newly accredited physicians or practicing physicians who choose to relocate. Factors which influence physician location change, and it cannot be assumed that those factors which explain the existing distribution of physicians can be used to explain location choice of physicians just beginning practice. Thus, to obtain results useful for policy purposes, research efforts should be directed not only toward identifying those factors which describe the distribution of the current physician population, but also toward explaining the flows of recent graduates. However, most research has focused on the former issue, and is based on cross-sectional models to explain variation in physician density, 31/ despite the limited utility of this approach for explaining the choice of location of new practitioners.

The size of the geographic area being studied is also important for determining the hypotheses to be tested and the appropriate models to use in testing these hypotheses. Studies based on the state as the unit of observation often are not useful for explaining the proportion of physicians in urban or rural areas, for example. Studies based on county data are more useful for understanding the reasons for geographic discrepancies among small areas, but may still not be helpful for ascertaining the suburban or inner-city differences. Comparisons across intraurban studies are difficult since different geographic units including postal zone and census tract were used for analysis.

There are other technical problems with the literature. Terms such as "prior residence" are used differently by different authors. The data used, time periods, geographic units studied, and the analytic models specified differ from study to study. Most of the econometric studies have used single equation models which do not adequately sort out the separate effects of the demand for physician services with the available supply of physicians. Furthermore, to explain physician density, many of the studies use socio-economic variables which tend to move together in the same pattern, and are so highly correlated that it is difficult to sort out their respective effects on the distribution of physicians. This makes it difficult to identify the key variables which really explain physician density.

The Human Resources Research Center 32/ has shown that the variation among states in the distribution of primary care compared to other types of physicians is significant (Table 3). There are approximately 129 physicians per 100,000 population across all the states, but only 85 are in office-based practice, and only 39 of these are in the primary care specialties of general practice, internal medicine, and pediatrics. Studies which distinguish between factors which affect the location of office-based physicians and that of hospital-based physicians would be useful for public policy. Also, the degree of association between physician density and certain variables which have been used to explain the distribution of physicians is very different for primary care specialists, and other specialists. For example, the degree of association, or the correlation coefficient between income per capita and physician location was more than 0.70 for nonprimary care physicians, but only 0.49 for primary care physicians (Table 3).

As a result of these problems, every study must be examined carefully to identify the geographic units discussed, the data bases used, and the underlying theories applied. Although there are conflicting results from the literature on the determinants of practice location, a few general conclusions can be made.

Economic Determinants

Most literature that attempts to explain the geographic location of physicians on the basis of economic determinants does not use physician income, the level of fees, or the average work week as explanatory variables, but instead uses proxy variables, such as population size, per capita income, and welfare spending. This is because data are not available; it also reflects an absence of theoretical research on the relationship among these variables.

The relative importance of income in a physician's choice of practice location has been examined by economists with mixed and inconclusive results. 33/ The two major studies were published in 1968, which may limit their value for current and future public policy decisions. Sloan 34/ found the average net income received by physicians in 1960, as measured by the percentage of physicians who worked more than 49 weeks a year, had a positive and statistically significant effect on a physician's decision to locate. Benham, 35/ however, found physician income to have a positive but statistically insignificant relationship to the geographic distribution of physicians and dentists in the United States between 1930 and 1950.

TABLE 3. CORRELATION COEFFICIENTS ACROSS STATES BETWEEN PHYSICIANS PER ONE THOUSAND PERSONS AND OTHER VARIABLES (1970)

Variable	All non-federal physicians	Physicians in office-based practice	Primary care physicians in office-based practice		Non-primary physicians in office-based practice		Physicians as defined by Bureau of the Census
			(A) a/	(B) b/	(A) b/	(B) c/	
Mean	1.29	.85	.39	.45	.46	.40	1.23
S. D.	.34	.15	.06	.06	.11	.90	.31
Coef. of variation	.27	.17	.15	.14	.23	.23	.26
Expected earnings							
Income per capita	.72	.70	.49	.60	.72	.71	.73
Private health Insurance benefits	.55	.45	.26	.34	.49	.48	.56
Public expenditures on physician services	.51	.63	.52	.55	.61	.63	.45
Prac. expense meas.							
Wage rates	.81	.81	.54	.67	.84	.83	.79
Increase in malpractice premiums	.33	.43	.25	.33	.46	.46	.28
Hospital facilities							
Private hospital beds per capita	.16	.18	.38	.29	.04	.09	.16
Plant assets per hospital bed	.60	.47	.22	.34	.55	.52	.55
Outpatient visits in short-term nonfederal hospitals	.72	.63	.46	.54	.63	.63	.65
Health status measures							
Percentage of pop. age 65 or over	-.01	-.06	.16	.03	-.17	-.12	-.05
Percentage of pop. who are disabled	-.44	-.45	-.37	-.42	-.43	-.43	-.48
Infant mortality rate	-.34	-.41	-.42	-.41	-.35	-.38	-.38
Country of medical education							
Percentage of office-based physicians who are foreign medical graduates	.47	.34	.17	.24	.38	.37	.48
Geographic characteristics							
Percentage of pop. living in rural areas	-.59	-.58	-.20	-.36	-.70	-.68	-.66
Pop. per square mile	.53	.39	.15	.27	.46	.44	.59
Land area	-.17	.06	.12	.09	.01	.02	-.16

Source: Human Resources Research Center, "Factors Affecting Distribution of Physicians by Location of Practice in the U.S.", Paper No. 3 in Physician Location Choice Series (Los Angeles: University of Southern California, October 1975), p. 13.

Note: Correlation of coefficients larger in absolute value than .23, .28, and .36 are significantly different from zero at the .1, .05, and .01 levels, respectively.

a/Excludes obstetrician-gynecologists. Includes general practitioners, internists, and pediatricians.

b/Includes obstetrician-gynecologists.

c/Excludes obstetrician-gynecologists.

Population size was determined to be the most important factor in the present distribution of physicians and population growth was the most important factor for the location of new doctors.

In his model of physician location decisions, Hadley 36/ found financial variables were not significant in a physician's choice of location. The physician's relative mean net income (specific to each physician's specialty) was found to be statistically insignificant in a physician location choice, which may be due in part to the lack of exact physician productivity data. Variables which were incorporated in the equation as proxies for the demand for physician services (relative per capita income, proportion of physicians, infant mortality rate, working more than 49 weeks, annual number of patient visits per physician) did affect the location choice of physicians who had no prior contact in the state and, to a much lesser degree, those physicians who had their medical school and graduate medical education in the same state.

Hambleton 37/ developed an economic model of physician location in an attempt to analyze physician fees and hours as a determinant in the distribution of physicians by geographic area. However, since data on physician fees and hours were inadequate, per capita income and welfare spending per capita were used to analyze the geographic distribution of specialists at the state, county, and postal zone level. Although per capita income and welfare expenditures were minor factors in the location of specialists among the states, they were of positive and significant importance in a specialist's location choice at the county level and of no importance to a specialist's choice to locate in a city. The author concluded that physician location could be explained partially by the determinants of physician fees and hours mentioned above, although his model was more successful in explaining the geographic distribution of physicians among states and counties than among smaller areas.

Proxy variables for physician incomes have been used in other studies to analyze physician location choice with equally mixed results. Population level, or change, was found by two studies 38/ to be the most important determinant of physician distribution. In almost all studies, per capita income was found to be positively related to physician distribution, 39/ although the relationship was not always statistically significant. Urbanization also had significant effects on physician location, although the separate influence of per capita income and urbanization is difficult to determine. 40/ Age, race, and education of the population have not been found to be related to location choice at the state level.

Limitations in the economic literature stem from a lack of data and lack of consideration of important nonecomomic variables (all these studies assume that physicians are income maximizers), which lead to inconclusive results about the relationship between physician location and physician income levels. This may be either because physician income is not an important influence in location choice or because the studies have not been designed in a way that would permit a valid test of this relationship. Furthermore, physicians may be motivated more by expectations of future earnings than by historical earnings patterns, although few studies have considered this factor. Yett and Sloan have reported, however, that current physician income levels in localities do not have a direct bearing on physician distribution patterns. 41/ Finally, the studies use aggregate data which cannot explain physician distribution in small geographic areas. There are not sufficient data at this time to allow a rigorous analysis of physician choice based on all possible influences.

De Vise, a geographer, 42/ examined the role of Medicare and Medicaid funds as a factor in physician location. Although he shows the allocation of Medicare and Medicaid funds to be higher in states with higher physician densities, the causal relation he suggests -- that physicians have migrated to these states due to the disproportionate distribution of Medicare and Medicaid funds -- is not established in the analysis.

Prior Attachment of the Physician to Geographic Location

In explaining location choices made by new physicians, many investigators have found some association between previous geographic contacts with a particular area and a physician's choice of practice location, although a precise estimate of these relationships has not been determined. 43/ The type of community in which the physician was born or lived before attending medical school, the location of the medical school, the location of internship training, and the location of residency training have been identified as prior location factors which alone and together may affect the choice of practice location. There is evidence as well that the more prior contacts a physician has had in a state, the more he will tend to locate his practice in that state. Weiskotten 44/ concluded that all prior location factors influenced a physician's location choice, and that the state of residency training was the single most important factor of those identified. More recent data corroborate this finding; 45/ of the physicians who graduated from medical school in 1960 and went on to residency training, 43 percent were practicing in the same state as the site of their residency training (Table 4). Similar results were obtained by Weber for the period from 1960 to 1970. 46/ The dominant position of the residency site among prior location factors is also supported by Petersdorf, who reported that 53 percent of the specialists located in the WAMI region (the states of Washington, Alaska, Montana, and Idaho) had obtained their training in the region. 47/

The importance of the residency training site as an isolated factor in influencing a physician's practice location is disputed by Hadley's 48/ additional analysis of Weiskotten's original data of 1945 and 1950 medical school graduates. He reported that Weiskotten's method involved double counting since the four contact events are not mutually exclusive, and

TABLE 4. LOCATION OF MEDICAL SCHOOL, INTERNSHIP OR RESIDENCY, AND PRACTICE

State	Med. school grds. (1960)		Interns and residents	
	Total No.	No. (%) practicing in same state	Total No.	No. (%) practicing in same state
Total	6,831	2,916(42.7)	6,831	3,517(51.7) b/
Alabama	67	41(61.2)	63	40(63.5)
Arizona	--	--	21	17(80.9)
Arkansas	82	43(52.4)	39	25(64.1)
California	321	235(73.2)	793	587(74.0)
Colorado	71	23(32.4)	131	56(42.7)
Connecticut	61	8(13.1)	104	46(44.2)
Delaware	--	--	6	1(16.6)
District of Columbia	255	21(17.3)	193	38(19.7)
Florida	95	65(68.4)	166	119(71.7)
Georgia	154	95(61.7)	139	85(61.1)
Hawaii	--	--	35	8(22.8)
Illinois	503	147(29.2)	291	145(49.8)
Indiana	129	74(49.6)	107	60(56.1)
Iowa	106	33(31.1)	75	28(37.3)
Kansas	96	34(35.4)	77	29(37.7)
Kentucky	86	48(55.8)	52	28(53.8)
Louisiana	200	94(47.0)	180	89(49.4)
Maine	--	--	9	7(77.8)
Maryland	146	49(33.6)	197	66(33.5)
Massachusetts	205	90(29.5)	344	151(43.9)
Michigan	233	119(51.1)	279	134(48.0)
Minnesota	120	76(55.8)	214	75(35.0)
Mississippi	61	30(49.2)	35	19(54.3)
Missouri	246	60(23.8)	170	52(30.6)
Nebraska	141	26(18.4)	35	19(54.3)
New Hampshire	--	--	11	5(45.4)
New Jersey	68	31(45.6)	79	55(69.6)
New Mexico	--	--	11	4(36.4)
New York	883	339(38.4)	860	431(50.1)
North Carolina	194	77(39.7)	139	69(49.6)
Ohio	301	128(42.5)	328	153(46.6)
Oklahoma	82	50(61.0)	75	44(58.7)
Oregon	69	32(46.4)	66	34(51.5)
Pennsylvania	635	249(39.2)	450	244(54.2)
Puerto Rico	33	18(54.5)	11	7(63.6)
Rhode Island	--	--	12	3(25.0)
South Carolina	55	40(72.7)	53	33(62.3)
Tennessee	271	97(35.8)	151	78(51.6)
Texas	298	208(69.8)	367	207(56.4)
Utah	42	21(50.0)	55	23(41.8)
Vermont	42	6(14.3)	14	5(35.7)
Virginia	155	76(49.0)	123	67(54.5)
Washington	72	40(55.5)	123	62(50.4)
West Virginia	--	--	11	6(54.5)
Wisconsin	153	93(60.8)	104	63(60.6)
Not available	--	--	33	0(0)

Source: Henry R. Mason, "Medical School, Residency and Eventual Practice Location: Toward a Rationale for State Support of Medical Education," *Journal of the American Medical Association* 233 (July 7, 1975): 50.

a/Final year of graduate training.

b/Divisor used to determine this percentage was 6,798 instead of 6,831, since 33 graduates had not taken United States training.

that, as a single factor, site of residency training has a small effect on location choice. However, in combination with the three other contact factors, the influence of residency training sites on the practice location of the medical school graduates studied was considerable.

Fein and Weber 49/ inquired into another aspect of the relationship between residency training and physician's location choice, and concluded that physicians take their residency training in states where they intend to establish their practice, and do not choose their practice location subsequent to residency training. However, this conclusion was disputed by Yett and Sloan. 50/ Hadley 51/ questions both sets of findings and concludes the causality issue yet to be resolved. Yett and Sloan also found that the more contact events a physician has in a state the greater the probability of his locating in the state, and that the more recent contacts appear to have a greater impact than the earlier ones.

Hadley 52/ reported that local residents who graduated from a medical college in their state would most probably remain in the state if they also received graduate training in that state, and that they do so because of their personal attachment to the state. However, physicians who had no previous contact with a state or had graduate training only in a state, tended to choose states with higher rates of net population migration. These findings agree with those of Held 53/ who found the migration patterns of American medical school graduates tend to be similar to those of the white male population over 22. Except for New England, the direction of net migration was similar for both groups. The flow was to the West and South and to the coasts and away from the central regions of the country. He also found considerable variation between states in their ability to retain or attract new physicians, and different migratory patterns of public and private school graduates. His findings emphasize the complexity of the location choice process.

An analysis of data from a 1971 54/ survey of osteopathic physicians found that, although 40 percent of the physicians were practicing in their state of birth and 21 percent in the state where their osteopathic college was located, only 13 percent were practicing in the same state as both college and birth. This number of prior contacts in a state appears to decrease the probability of an osteopathic physician locating in that state and is the reverse of the effect of multiple prior contacts on allopathic physicians.

Community Characteristics

A physician's decision to locate his practice in a specific community is influenced not only by economic considerations and his prior knowledge of the area, but also, and perhaps most importantly, by certain characteristics of the community. These include the prevailing social, cultural, and environmental conditions that affect the quality of life, the proximity of professional colleagues and health facilities, demographic characteristics, such as population size and density, and per capita income.

Several studies have noted that the level of educational expenditures with a state 55/ and the attractiveness of the climate have been significant in the choice of location of recent medical graduates. 56/ In Hambleton's economic model of physician location, 57/ certain indicators of leisure time activities -- public beaches, campsites, tennis courts, and recreationa spending -- exerted a strong influence on the state location of specialists but exerted less effect on their county distribution.

In surveys in which physicians indicated their reasons for locating in a particular area, life style indicators are often listed as being of major importance by both urban and rural physicians. 58/ One study found that non-metropolitan physicians consider community and social factors of importance in choice of location; 59/ another 60/ noted that urban physicians feel that opportunites for social life and cultural advantages are an important factor in the location decision. A 1972 survey of 1965 medical school graduates found that life style factors were among the seven most important factors checked by all graduates. Climate and geographic features of the area were major factors listed. 61/

Similarly, in a survey of Illinois physicians conducted in 1968, cultural and social opportunities were listed by 50 percent of the respondents as being important in determining practice location. Environmental factors, such as climate and crime, were reported as being the prime reason for leaving the state. 62/

The community's ability to provide satisfactory professional contacts not only is considered to be important in influencing a physician's choice of practice location, but is one of the few community characteristics that may be amenable to public policy influences, although at substantial cost. The number of medical schools, the number of hospital beds, the type of practice, and the number of supporting medical personnel have all been examined as potential factors in a physician's choice of practice location. The presence of a medical school may influence the decision to locate in an area because of a prior relationship or by providing attractive opportunities for practice, particularly for specialists. One study found that the presence of a medical school in an area seems to be related to the number of specialists in that area. However, it did not significantly increase the number of physicians, per capita, in any areas of the state other than near the location of the medical school, and there were fewer general practitioners in the immediate area of the medical school than in other areas of the state. 63/ This may be due to the ambulatory care orientation of such physicians, and may also apply to family practitioners.

Many studies on location choice have examined the importance of hospital facilities as a factor in physician choice of location; results are mixed and inconclusive. Units of analysis have been at the state level, the county level, the SMSA level, and the zip code or census tract level. The explanatory variables have included the number of hospital beds, 64/ the number of hospital beds per capita, 65/ the number of hospitals in the area, 66/ and the percentage increase in the number of hospital beds. 67/ As summarized by the Human Resources Research Center:

- There appears to be a weak relationship between the total number of physicians, or the total physician-to-population ratio, and hospital capacity, regardless of the size of the geographic unit used. 68/
- There is a strong positive relationship between the number of specialists, or the specialist-to-population ratio, and hospital capacity. 69/
- No cause and effect relationship between hospital capacity and physician location has been demonstrated. 70/

This paper concludes that, "It is difficult to avoid the conclusion that the role of the hospital in location decisions may be exceedingly complex. Little is known of this role at the theoretical level, and until it is better understood, many questions regarding the influence of hospital capacity on physician location plans must remain unresolved." 71/

The availability of supporting health personnel may influence the location decisions of physicians, but investigation into this relationship is too sparse and research results to ambiguous to warrant reporting.

The Urban-Rural Location Choice

Certain economic characteristics at the community level have been examined to explain the urban-rural distribution of physicians, and particularly, the relative shortage of physicians in rural areas. Population size and growth appear to be the dominant determinants of physician location according to research.

At both the county and town levels of aggregation, the larger the population or extent of urbanization, the higher the physician-to-population ratio. 72/ One study found population growth of major importance in an examination of the effects of population change and per capita income on physician location in county groups, ranging from isolated rural areas to metropolitan areas. Population change was an important influence on the distribution of the stock of physicians and was more effective than per capita income in increasing their number in urban counties than in rural counties. 73/

The rural-urban choice of location is also affected by prior attachment factors. Almost all studies on rural-urban choice of location suggest that physicians prefer to practice in a community similar to where they were born or brought up. Studies 74/ have found that students with rural backgrounds tend to locate in rural areas more than students with primarily urban backgrounds. Breisch 75/ found that students attending medical school in urban areas for the most part established their practices in urban locations. However, the students' place of birth and rearing may have influenced their choice of medical school location.

Some attention has focused on preceptorship programs designed to expose students to rural practice opportunities. Interpretation of the studies requires care since courses with similar titles may vary greatly in content and supervision among schools. Steinwald and Steinwald 76/ found that exposure to rural practice encourages urban-reared medical students and postgraduates, particularly those planning to enter nonprimary care, to choose practices in rural areas. (The effect was slight on rural-reared physicians.) Although a greater proportion of rural-reared physicians participate in preceptorship programs and choose rural practice, it appears this is due to predisposing factors and not program participation. Forty percent of the participants and nonparticipants, both urban and rural, reported they had considered rural practice.

The urban-rural choice is also affected by the cultural, social, and environmental characteristics of a community and by possibilities of professional advancement. Social and cultural factors are shown to be more importa to nonmetropolitan and urban physicians than physicians who locate in small towns. The latter were more interested in the quality of life offered by small town surroundings and were not concerned with the amenities of urban living. 77/ In a recent mail survey of primary care physicians, 78/ the importance of an opportunity for regular contact with a medical school or medical center was associated with physicians going into a rural practice. All physicians ranked the opportunity to join a group practice as the most important factor in their location decision, with climate and geographic features of an area and the availability of clinical support facilities of subsequent importance.

Steinwald and Steinwald 79/ found a positive association between type of practice and location decision. Of the 1965 medical school graduates who eventually joined groups, 25 percent located in rural areas; of those physicians who did not join groups, only 17 percent located in rural areas. Overall, 57 percent of all graduates indicated that opportunity to join a desirable group practice or partnership was of prime importance in their location decision.

Williams and Uzzell 80/ examined the effect of hospital construction under the Hill-Burton program on the location of physicians in Georgia, and found that in all communities, hospitals seemed to attract physicians; those in the larger communities attracted the greatest absolute number, but those in the smaller communities attracted proportionately more physicians compared to the population than did larger communities. In his study of non-metropolitan physicians, Bible found that many physicians felt that, in general, lack of opportunities for professional growth and, in particular, unavailability of hospital facilities and continuing education programs were severe liabilities to their practice. 81/

Intra-Urban Location Choice

A somewhat different set of variables is involved in the intraurban location of physicians from those used to explain their geographic distribution at other levels. Racial distribution, age of the population, accessibility of a central business district, socioeconomic factors, population size, and professional factors have been examined. Population size or degree of urbanization, factors which are highly correlated with physician distribution and per capita income at other levels, do not have the same significance within city boundaries. Not only does the market for physician services extend beyond the particular area of his office location, but the correlation between population size and family income varies among areas. Population size or density may be positively related to low family income in the Bedford-Stuyvesant area of Brooklyn, and positively related to high family income on Park Avenue in Manhattan.

The conclusions drawn from the research findings on intraurban physician location are subject to even more qualifications than were specified in other reviews of the location literature. It is difficult to draw comparisons or to generalize, since only one city is examined in most studies; there are differences in the definitions of key variables, such as socioeconomic status; different levels of aggregation are used by individual investigators; and the importance of transportation is not considered. Although there is a large body of literature, the majority is descriptive, and very little analytical research has been done.

De Vise and Dewey 82/ described the changing distribution of physicians in Chicago at three levels of geographic detail: the city and suburbs; concentric rings circling the city's core, and individual municipalities and "community areas." They concluded that changing socioeconomic status* and a large influx of blacks into an area were statistically significant factors in causing physicians to move their offices out of an area. Neither the distribution of hospital beds nor volume of retail sales were of particular importance in their location change.

---

*Socioeconomic status is used by DeVise and Dewey not as a specific quantity but as a ranking based on a composite of several socioeconomic indicators. For a detailed description of methods used, see Where the Doctors Have Gone, pp. 42-543.

Observable trends in the distribution of physician offices were a decrease in the total number of private practitioners in the Chicago metropolitan area and a significant decline in the private physician-to-population ratio; a shift in physician offices from the metroplitan area to the suburbs at a faster rate than the population shift; a suburban shift that was not unifor in all directions but toward a greater maldistribution of physician offices, a high association between the shifts in physician offices and the socioeconomic status and racial structure of the area; and an inverse relationship between the rise in specialization and the availability of physicians for primary care.

Although other descriptive studies confirm the conclusion that the number of physicians is declining in the low-income areas of cities 83/ and more physicians are establishing practices in the suburbs, 84/ evidence on the importance of race as a factor in the intraurban distribution of physicians is less conclusive. In a study of census tracts in Brooklyn, New York, 85/ race was not found to be an important variable; however, in studies of Chicago, it was found to be an important factor. 86/

Research findings reported in analytical studies do not agree on the importance of socioeconomic factors and race as determinants of physician intraurban practice locations. Using postal zones with SMSAs as the unit of aggregation, Hambleton found more physician offices were located in those postal zones with families of low median incomes and a large black population than in other areas. Physician offices, particularly those of specialists, were found centered in the business districts, regardless of race or income characteristics of the postal zone. 87/ This may be because the intraurban location of a physician's office does not confine his practice to those residing in the immediate area, nor does it guarantee accessibility to individuals living in the neighborhood.

The findings that physicians do not consider area income or race as important determinants in their decision to locate their offices within a city was confirmed in a study in Pittsburgh using census tract data. 88/ In an analysis of census tract data in Boston, Robertson reported that a high socioeconomic status was an important factor in the distribution of internists and pediatricians. 89/ In studying census tracts in Chicago, Elesh and Schollart found that physicians located their offices in high-income areas but not in areas with a large black population. The age of the population was also found to affect physician distribution. The authors found population, education, and age to be the most important determinants of physicians' choice of location. 90/

There appears to be a consensus among investigators on the influence of two factors that affect a physician's choice of location within the city. Physicians 91/ tend to locate in central business districts, thus limiting their proximity to a small proportion of the population in a few areas, and are concentrated in locations where professional contacts such as hospitals, 92/ hospital beds, 93/ and colleagues 94/ are available.

Location Preferences Among Contact Physicians and Other Specialists

Information on the different effects of various factors on the location choice of primary care and referral specialists is sparse,* partly due to the lack of research on the sequential timing of specialty and location choices. Evidence cited above indicates that specialty choice generally precedes location choice. This was confirmed by Taylor 95/ who examined data on choice obtained from 200 medical students, most of who were born in rural areas. Forty percent of the students had chosen a specialty but not a location; only 17 percent had decided upon a location but not a specialty.

The findings of several studies 96/ suggest a general location decision is not made until after graduation from medical school by as many as 75 to 85 percent of all physicians. Physicians brought up in rural areas tend to make earlier location choices than those from urban locations, particularly if they choose a contact specialty, and physicians brought up in rural areas select rural locations more often than those from urban areas. Results of a mail survey of 1965 medical school graduates 97/ indicate that among the respondents, 73 percent of all physicians and 68 percent of primary care physicians who responded to the survey determined their preference for community size only after medical school graduation and physicians who decided to settle in a rural area decided on a practice location sooner than those who decided to settle in an urban location.

The few available studies confirm that not all specialists are influenced in the same way by factors representing prior attachment and community characteristics. 98/ There are no studies as to the different effects of economic influences on the location choice among specialists.

Heald's research shows that proximity of training facilities was important in the location decision of all primary care physicians. 99/ In a study of physician location in the 299 SMSAs in 1965, Joroff and Navarro 100/ found that the presence of a medical school was the most important factor in the location choice of internists, pediatricians, allergists, obstetricians and gynecologists, and other medical specialists. The general hospital bed rate was the most important indicator for surgical specialties, general surgery, otolaryngology, urology, dermatology, and radiology. And the median years of the population's education was the most important factor for ophthalmology, other surgical specialties, anesthesiology, other specialties, and pathology.

---

*Published information on location preferences of family physicians was not available.

In his study of medical school graduates from 1955 to 1965 who were practicin in 1971, Weber found that all specialists are not similarly affected by factors influencing location choice. More than other physicians, psychiatris tended to locate more often in states where they had attended both medical school and residency training, although this tendency declined during the period being studied. Psychiatrists, and then internists and pediatricians, tended to locate their practices in the state where they had had graduate training only. This tendency increased during the period studied for all physicians, and particularly for pediatricians.* Of all specialists, those in anesthesiology, radiology, and pathology were most likely to locate in states where they had had no prior contact. 101/

There is conflicting evidence about the different effect of per capita income on the distribution of general practitioners and specialists. Hambleton's analysis, using the states as the geographic unit, shows that per capita income was the most important influence in the choice of practice location of general practitioners, but had little influence on a specialist' decision. His calculations, however, do not take into account the degree of urbanization. 102/ Ball and Wilson, on the other hand, found that "effective buying income, per capita" was a more relevant factor in the location of specialists than in the location of general practitioners. 103/ This thesis is partially supported by Wacht's findings that noneconomic factors were more important for the location choice of general practitioners particularly those settling in rural areas. 104/

Consistent with the findings on urban-rural preferences, other community characteristics that affect the distribution of general practitioners and specialists are community size, environmental factors, and educational attainment. The influence of community size is evident in the geographic distribution of physicians. The greatest proportion of general practitioner are found in communities under 5,000, and the second highest proportion in the 5,000 to 24,999 size group. Although specialists are present in all communities, they locate most often in larger cities. 105/ Attractive environments 106/ and high education levels were found to be more important to specialists than to general practitioners, although Raskin and Campbell 107/ found high education levels to be important for all physicians except obstetricians and gynecologists, in their study of large metropolitan areas of 1,000,000 or more.

Conclusion

It is clear from the literature that there are many factors which bear upon each physician's choice of practice location. There is little evidence that differences in net income are important, in and of themselves, but that factors which contribute to income levels - the wealth of the community, the availability of hospital beds, the proportion of local population covered by health insurance - may be important. From the physician's point of view, a congenial community in which to establish practice is also one in which an adequate income level can be easily generated. Yet as Lave, Lave and Leinhardt have pointed out:

---

*The decline in importance of medical school education and an increase in the importance of the site of residency training in physician choice of practice location is also shown in studies by Weiskotten and Mason.

> Income seems no longer to be the most important factor. Instead, it would appear that physician salaries are currently so high that the lure of still higher income influences few. Physicians seem now to be more concerned with cultural, environmental and professional amenities. These include leisure time (attained by a not overly-demanding practice and the effectiveness of a non-price rationing procedure), medical resources, interesting care variety, income security, colleagues, and other qualities associated with large populations or dense urban areas... Thus, urbanization, medical specialization (leading to greater dependence among physicians on cooperative activities), dependence on hospital-based technological care, and the rise of staff positons in institutional medicine seem to be the primary processes influencing the contemporary national spatial distribution of physicians. 108/

It is clear that prior residence in an area can be related to the ultimate location of a practicing physician. At the margin, graduates from rural backgrounds tend to locate in rural areas more than other physicians, but very few physicians today are likely to choose the life style traditionally associated with the rural general practitioner. Fifty-seven percent of all recent graduates in the Steinwald survey were influenced by their desire to join a group practice which suggests that it will be difficult to increase the number of physicians in geographically underserved areas.

Clearly more research is needed in these areas. As the Human Research Center has concluded, "New research should investigate rates of entry within supply-and-demand frameworks, attempt to standardize net incomes for specialty and cost-of-living differences, and incorporate dynamic models in which net income opportunities are measured by current or past rates of change of net income as well as by net income levels." 109/

* * *

FINDINGS

Conceptual, definitional, and methodological problems in the literature on physician choice of specialty and geographic location limit the applicability of the findings for public policy. Much of the research in this area deals with the general practitioner and has limited applicability as the number of such physicians decreases.

Many factors affect a physician's choice of specialty and geographic location in the United States, and financial incentives appear to play only a minor role in these determinations.

There is no fixed time at which a decision to choose a particular specialt is made and specialty choice is frequently changed, particularly if made early in training. The effect of individual characteristics on specialty choice cannot be distinguished from that of institutional variables. In general, however, physician specialty preference appears to be conditioned by background and personality characteristics and reinforced by medical school and graduate medical education experiences, particularly with respect to faculty influence. The paucity of primary care role models in such settings may be partially responsible for a tendency toward specialization among recent graduates.

All specialists are not similarly affected by factors influencing location choice, although there is a direct association between previous geographic contact with a particular area and a physician's choice of practice location. The type of community in which a physician was born or lived before attending medical school, the location of the medical school and graduate training experience contribute to location decisions. Life style factors as well as the existence of professional resources such as medical schools and hospitals are important contributing factors as well. Several studies suggest that a location decision is not made until after graduation from medical school by as much as 75 to 85 percent of all physicians. Although income alone does not explain physician location choice, communities in wh physicians locate are usually ones in which an adequate income level can easily be generated.

REFERENCES

Chapter 9

1

American Medical Association, Center for Health Services Research and Development, Measuring Physician Manpower: Contributions to a Comprehensive Health Manpower Strategy (Chicago: American Medical Association, 1973); U.S. Department of Health, Education, and Welfare, National Center for Health Services Research and Development, Social and Economic Analysis Division, Physicians' Specialty and Location Decisions: A Literature Review, Discussion Paper Series No. 10 by Jack Hadley (Rockville, Md., May 1973);

Human Resources Research Center, "Evidence Concerning the Supplies of and Requirements for Primary Care and the Timing of Specialty Choice Decisions," Paper No. 1 in Physician Specialty Choice Series (Los Angeles: University of Southern California, 1975, mimeographed);

HRRC, "The Relationship Between Medical Students' Background and Personality Traits and Their Choice of Specialties, Part I," Paper No. 2 in Physician Specialty Choice Series (Los Angeles: University of Southern California, 1975, mimeographed);

HRRC, "The Relationship Between Medical Students' Background and Personality Traits and Their Choice of Specialties, Part II," Paper No. 3 in Physician Specialty Choice Series (Los Angeles: University of Southern California, 1975, mimeographed);

HRRC, "The Impact of Medical Schools on Student Specialty Choice," Paper No. 4 in Physician Specialty Choice Series (Los Angeles: University of Southern California, 1975, mimeographed);

HRRC, "Graduate Medical Education and the Specialty Choices of Physicians," Paper No. 6 in Physician Specialty Choice Series (Los Angeles: University of Southern California, 1975, mimeographed);

HRRC, "Economic Incentives in Physicians' Choice of Specialties," Paper No. 7 in Physician Specialty Choice Series (Los Angeles: University of Southern California, 1975, mimeographed);

G.D. Otis et al., "Medical Specialty Choice: A Review" (Albuquerque: University of New Mexico School of Medicine, 1973, mimeographed);

U.S. Department of Health, Education, and Welfare, Office of the Assistant Secretary for Planning and Evaluation, Factors Affecting Specialty Choice and the Interrelationship Between Specialty Choice and Geographic Location, No. OS-73-142, Prepared by CONSAD Research Corporation (Pittsburgh, Pa: October 1973).

[2] American Medical Association, Directory of Approved Internships and Residencies, 1974-1975 (Chicago: American Medical Association, 1975), p. 18.

[3] Mark L. Held and Carl N. Zimet, "A Longitudinal Study of Medical Specialty Choice and Certainty Level," Journal of Medical Education 50 (November 1975): 1044-1051.

[4] Robert H. Geertsma and Donald R. Grinols, "Specialty Choice in Medicine," Journal of Medical Education 47 (July 1972): 509-517; J. C. Donovan, L. F. Salzman, and P. Z. Allen, "Studies in Medical Education: Career Choice Consistency of Medical Students," American Journal of Obstetrics and Gynecology 112 (February 15, 1972): 519-526; Herbert Kritzer and Carl N. Zimet, "A Retrospective View of Medical Specialty Choice," Journal of Medical Education 42 (January 1967): 47-53; E. Wasserman, R. I. Yufit, and G. Pollock, "Medical Specialty Choice and Personality: Outcome and Postgradua Followup Results," Archives of General Psychiatry 21 (November 1969): 529-535.

[5] American Academy of Family Physicians, "1975 Survey of Family Practice Residencies and Graduates," mimeographed).

[6] F. S. Lyden, H. J. Geiger, and O. L. Peterson, The Training of Good Physicians (Cambridge, Massachusetts: Harvard University Press, 1968); Herman G. Weiskotten et al., "Trends in Medical Practice: An Analysis of the Distribution and Characteristics of Medical College Graduates, 1915-1950," Journal of Medical Education 35 (December 1970): 1071-1095.

[7] R. P. Oates and H. A. Feldman, "Medical Career Patterns," New York State Journal of Medicine 71 (October 15, 1971): 2437-2440; J. E. Breed, "The Plans of Our Doctors in Training," Illinois Medical Journal 138 (December 1970): 602-603; J. E. Weiss, "Socioeconomic and Technological Factors in Trends of Physicians to Specialize," HSMHA Health Reports 86 (January 1971 46-51; R. L. Crawford and R. C. McCormack, "Reasons Physicians Leave Primary Practice," Journal of Medical Education 46 (April 1971): 263-268; E. B. Harvey, "The Vanishing Practitioner," Journal of Medical Education 4 (August 1973): 718-724.

[8] Frank A. Sloan, "Lifetime Earnings and Physicians' Choice of Specialty," Industrial and Labor Relations Review 24 (October 1970): 47-56

[9] American Medical Association, Center for Health Services Research and Development, Measuring Physician Manpower: Contributions to a Comprehensive Health Manpower Strategy (Chicago: American Medical Association, 1973).

[0] U.S. Department of Health, Education, and Welfare, National Center for Health Services Research and Development, Social and Economic Analysis Division, Models of Physicians' Specialty and Location Decisions, Technical Paper Series No. 6 by Jack Hadley (Rockville, Md., December 1975).

[1] Judith Warner and Phil Aherne, eds., Profile of Medical Practice (Chicago: American Medical Association, 1974).

[2] AMA, Directory 1974-1975, p. 11.

[3] Ibid., p. 15.

[4] Robert E. Coker, et al. "Patterns of Influence: Medical School Faculty Members and the Values and Specialty Interests of Medical Students," Journal of Medical Education 35 (June 1960): 518-27; W. F. Dube and Davis G. Johnson, "Study of U. S. Medical Applicants, 1972-1974," Journal of Medical Education 50 (November 1975): 1015-32; J. D. Kosa, "The Medical Student: His Career and Religion," Hospital Progress (April 1969): 51-3; Kritzer and Zimet; Lyden, et al.; Mary A. Monk, and Carolina B. Thomas, "Personal and Social Factors Related to Medical Specialty Practice," Johns Hopkins Medical Journal 127 (July 1973): 19-29; U. S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, Bureau of Health Resources Development, Trends and Career Changes of College Students in the Health Fields, No. (HRA) 76-54 (Washington, D.C.: Government Printing Office, November 1974), p. 10.

[5] J. J. Kaser and R. C. Coker, "The Female Physician in Public Health: Conflict and Reconciliation of the Sex and Professional Roles," Sociology and Social Research 49 (March 1965): 294-305.

[6] C. Lopate, Women in Medicine (Baltimore: Johns Hopkins Press, 1968); L.M. Lowenstein, "Who Wants Lady Interns?" New England Journal of Medicine 284 (April 1971): 735.

17
"Medical Education in the United States 1974-1975," Journal of the Americ Medical Association 234 (December 29, 1975): 1338.

18
P. B. Livingston and C. N. Zimet, "Death Anxiety, Authoritarianism, and Choice of Specialty in Medical Students," Journal of Nervous and Mental Disease 140 (March 1969): 222-30; J. B. Meyers and J. A. Davis, "Relati of Medical Students Psychological Type to Their Specialties Twelve Years Later," paper presented at the annual meeting of the American Psychologi Association, Los Angeles, California, 1964; G. D. Otis and J. Weiss, "Patterns of Medical Care Preferences," Journal of Medical Education 48 (December 1973): 1116-23; Rosalia E. A. Paiva, and Harold B. Haley, "Intellectual, Personality, and Environment Factors in Career Specialty Preferences," Journal of Medical Education 46 (April 1971): 281-89; G. Zimney, and T. R. Thale, "Specialty Choice and Attitudes Toward Medical Specialties," Social Science and Medicine 4 (1970): 257-64.

19
Geertsma and Grinols; Oates and Feldman; Wasserman et al.

20
Wasserman et al.

21
Oates and Feldman.

22
Coker et al.

23
Lyden and Peterson.

24
DHEW, Trends and Career Changes, p. 10.

25
AAFP, "1975 Survey of Practice Residencies and Graduates."

26
DHEW, Factors Affecting Specialty Choice.

27
Emily Mumford, Interns, From Students to Physicians (Cambridge, Massachusetts: Harvard University Press, 1970).

28
J. H. Knowles, "The Role of the Hospital: The Ambulatory Clinic," Bull of the New York Academy of Medicine 40 (January 1975): 625-57.

29
Robert G. Petersdorf, "Health Manpower: Numbers, Distribution, Quality," Annals of Internal Medicine 82 (May 1975): 694-700.

30
AMA, Measuring Physician Manpower; James R. Cantwell and Barry S. Eisenberg, "The Spatial Distribution of Physicians: A Literature Review" (Chicago: American Medical Association, Center for Health Services Research and Development, June 1975, mimeographed); Health Manpower Policy Studies Group, Physician Location, Selection and Distribution: A Bibliography of Relevant Articles, Reports and Data Sources, Health Manpower Policy Discussion Paper Series D-3 by S. C. Crane and J. Reynolds (Michigan: University of Michigan, November 1974); DHEW, Physicians' Specialty and Location Decisions; J. W. Hambleton, Main Currents in the Analysis of Physician Location, Health Economics Research Center Research Report Series No. 8 (Madison, Wisconsin: University of Wisconsin Department of Economics, May 1971); HRRC, "The Influence of Physicians Background Traits and Preferences on Their Choice of Practice Location," Paper No. 2 in Physicians Location Choice Series (Los Angeles: University of Southern California, 1975, mimeographed); HRRC, "Factors Affecting the Distribution of Physicians by Location of Practice in the U. S.," Paper No. 3 in Physicians Location Choice Series (Los Angeles: University of Southern California, October 1975, mimeographed); Judith R. Lave, Lester B. Lave, and Samuel Leinhardt, "Medical Manpower Models: Need, Demand and Supply," Inquiry 12 (June 1975): 97-125; E. Long, The Geographic Distribution of Physicians in the United States, Final Report (Minneapolis: Inter Study, January 1975); U. S. Department of Health, Education, and Welfare, Factors Influencing Practice Location of Professional Health Manpower: A Review of the Literature, No. (HRA) 75-4 (Washington, D.C.: Government Printing Office, July 1974).

31
HRRC, "Factors Affecting the Distribution of Physicians," p. 6.

32
Ibid., p. 23.

33
F. Sloan, "Economic Models of Physician Supply" (Ph.D. dissertation, Harvard University, 1968); L. Benham, A. Maurizi, and M. Reder, "Migration Location, and Remuneration of Medical Personnel: Physicians and Dentists." Review of Economics and Statistics 50 (August 1968): 332-47; DHEW, Models of Physicians' Specialty and Location Decisions; Hambleton.

34
Sloan, "Economic Models of Physician Supply."

35
Benham, et al.

[36] DHEW, Models of Physicians' Specialty and Location Decisions.

[37] Ibid., Hambleton

[38] H.B. Steele, and G.V. Rimlinger, "Income Opportunities in Physician Locatio Trends in the United States," Western Economics Journal 3 (Spring 1965): 182-94; Benham et al.

[39] D. S. Ball, and J. W. Wilson, "Community Health Facilities and Services: The Manpower Dimensions," American Journal of Agricultural Economics 50 (December 1968): 1208-22; Benham et al; Hambleton; R. M. Scheffler, "An Empirical Investigation into the Geographic Distribution of Physicians and Specialists" (Ph.D. dissertation, New York University, 1971); Steele and Rimlinger.

[40] Ibid.

[41] D. E. Yett, and F. A. Sloan, "Migration Patterns of Recent Medical School Graduates," Inquiry 11 (June 1974): 125-42.

[42] Pierre de Vise, "Physician Migration from Inland to Coastal States: Antipodal Examples of Illinois and California," Journal of Medical Education 48 (February 1973): 141-51.

[43] Henry R. Mason, "Medical School, Residency, and Eventual Practice Location: Toward a Rationale for State Support of Medical Education," Journal of the American Medical Association 223 (July 7, 1975): 49-52; U. S. Department of Health, Education, and Welfare, An Essay on the Distribution of Physicians Amongst Specialties, by Gerald I. Weber, No. (OS) 171-71 (Washington, D.C.: Georgetown University, 1973); Weiskotten et al; Yett and Sloan.

[44] Weiskotten et al.

[45] Mason.

[46] DHEW, An Essay on the Distribution of Physicians.

[47] Robert G. Petersdorf, "Health Manpower: Numbers, Distribution, Quality."

48
DHEW, Models of Physicians' Specialty and Location Decisions.

49
Rashi Fein and Gerald I. Weber, Financing Medical Education: An Analysis of Alternative Policies and Mechanisms (New York: McGraw Hill Book Co., 1971).

50
Yett and Sloan.

51
DHEW, Models of Physicians' Specialty and Location Decisions.

52
Ibid.

53
Philip J. Held, "The Migration of the 1955-1965 Graduates of American Medical Schools," a paper prepared for the Ford Foundation Program for Research in University Administration, January 1973, p. 35.

54
U. S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration. Bureau of Health Resources Development, Osteopathic Physicians in the United States: A Report on a 1971 Survey, No. (HRA) 75-60 (Washington, D.C.: Government Printing Office, 1975) p. 5.

55
Sloan, "Economic Models of Physician Supply."

56
Bruce Steinwald and Carolynn Steinwald, "The Effect of Preceptorship and Rural Training Programs on Physicians' Practice Location Decisions," Medical Care 13 (March 1975): 219-29; Yett and Sloan.

57
Hambleton.

58
G. R. Peterson, "A Comparison of Selected Professional and Social Characteristics of Urban and Rural Physicians in Iowa," Graduate Program in Hospital and Health Administration Health Care Research Series No. 8 (Iowa City: University of Iowa, 1968, mimeographed).

59
B. L. Bible, "Physicians' Views of Medical Practice in Nonmetropolitan Communities," Public Health Reports 85 (January 1970): 11-17.

[60] James K. Cooper et al., "Rural or Urban Practice: Factors Influencing the Location Decision of Primary Care Physicians," *Inquiry* 8 (March 1975): 18-25.

[61] Steinwald and Steinwald.

[62] Illinois Board of Education, *Education in the Health Fields for State of Illinois, Volume II* (Chicago, Illinois: Presbyterian - St. Luke's Hospital, 1968).

[63] Ball and Wilson.

[64] D. Elesh and P. T. Schollaert, "Race and Urban Medicine: Factors Affecting the Distribution of Physicians in Chicago," *Journal of Health and Social Behavior* 13 (September 1972): 236-50; R. S. Kaplan and S. Leinhardt, "Determinants of Physician Office Location," *Medical Care* 11 (September-October 1973): 406-15; P. G. Marden, "A Demographic and Ecological Analysi of Physicians in Metropolitan America, 1960," *American Journal of Sociology* 72 (November 1966): 290-300; R. F. Wacht, "Economic Determinants of Physician Distribution Within the Southeastern Region of the United States" (Georgia State University, 1972, mimeographed).

[65] U. S. Department of Health, Education, and Welfare, Health Services and Mental Health Administration, *Determinants of Expenditures for Physicians' Services in the United States 1948-1968*, by V. R. Fuchs and M. J. Kraemer, No. (HSM) 73-3013 (December 1972); S. Joroff and V. Navarro, "Medical Manpower: A Multivariate Analysis of the Distribution of Physicians in Urban United States," *Medical Care* (September-October 1971): 423-28; Lave et al., B. Reskin and F. L. Campbell, "Physician Distribution Across Metropolitan Areas," *American Journal of Sociology* 79 (January 1974): 981-98.

[66] Hambleton.

[67] Yett and Sloan.

[68] HRRC, "Factors Affecting the Distribution of Physicians," pp. 97-100.

[69] Ibid.

[70] Ibid., p. 102.

[71] Ibid., p. 83.

[72] C. L. Marshall et al., "Principal Components Analysis of the Distribution of Physicians, Dentists and Osteopaths in a Midwestern State," American Journal of Public Health 61 (August 1971): 1556-64; I. Fahs and O. Peterson, "Towns Without Physicians and Towns with Only One: A Study of Four States in the Upper Midwest," American Journal of Public Health 58 (July 1968): 1200-11.

[73] Rimlinger and Steele; Ball and Wilson.

[74] M. Taylor, W. Dickman, and R. Kane, "Medical Students' Activities Toward Rural Practice," Journal of Medical Education, 48 (October 1973): 885-95; W. S. Wiggins, F. Greene, and M. E. Altenderfer, Trends in Medical Practice--An Analysis of the Distribution and Characteristics of Medical College Graduates, 1915-1955 (Chicago: American Medical Association, 1970).

[75] W. F. Breisch, "Impact of Medical School Characteristics on Location of Physician Practice," Journal of Medical Education 45 (December 1970).

[76] Steinwald and Steinwald.

[77] Bible; Cooper et al.

[78] Ibid.

[79] Steinwald and Steinwald.

[80] R. C. Williams and W. E. Uzzell, "Attracting Physicians to Smaller Communities," Hospitals 34 (July 16, 1970): 49-56.

[81] Bible.

[82] P. de Vise and D. Dewey, "More Money, More Doctors, Less Care:

Metropolitan Chicago's Changing Distribution of Physicians, Hospitals, and Population, 1950 to 1970," Chicago Regional Hospital Study, March 1972 (mimeographed).

83
M. H. Lepper et al., "Approaches to Meeting Health Needs of Large Poverty Populations," American Journal of Public Health, Part II 57 (July 1967): 1153-57; N. Piore and S. Sokal, A Profile of Physicians in the City of New York Before Medicaid and Medicare (New York Urban Research Center, 1968); M. L. Romer, "Health Resources and Services in Watts,"Hospital Topics 44 (July 1966): 28-31.

84
P. H. Rees, "Numbers and Movement of Physicians in Southeastern Chicago: 1953-1965," Chicago Regional Hospital Study, July 1967 (mimeographed).

85
Joroff and Navarro; L. A. May, "The Spatial Distribution of Physicians - The Special Case of the City" (B.A. Honors Thesis, Harvard University, March 1970).

86
de Vise and Dewey; Elesh and Schollaert.

87
Hambleton.

88
Kaplan and Leinhardt.

89
Robertson.

90
Elesh and Schollaert.

91
Elesh and Schollaert; Hambleton; Kaplan and Leinhardt; Robertson.

92
Elesh and Schollaert.

93
Kaplan and Leinhardt.

94
Robertson.

95
M. Taylor et al.

96
R. C. Parker and T. G. Tuxill, "The Attitudes of Physicians Toward Small-Community Practice," Journal of Medical Education 42 (April 1967): 327-44; K. A. Heald, J. K. Cooper, and S. Coleman, "An Analysis of Two Surveys of Recent Medical School Graduates" (Santa Monica, California: The RAND Corporation, January 1974, mimeographed); E. W. Hassinger, "Background and Community Orientation: Rural Physicians Compared with Metropolitan Physicians in Missouri," Research Bulletin No. 822 (Columbia, Missouri: University of Missouri College of Agriculture, 1963, mimeographed).

97
Heald et al.

98
Ibid., Joroff and Navarro; DHEW, An Essay on the Distribution of Physicians.

99
Heald et al.

100
Joroff and Navarro.

101
DHEW, An Essay on the Distribution of Physicians.

102
Hambleton.

103
Ball and Wilson.

104
Wacht.

105
Hambleton.

106
Marden.

107
Reskin and Campbell.

108
Lave et al., p. 112.

109
HRRC, "Factors Affecting the Distribution of Physicians," p. 161.

Chapter 10

PHYSICIAN CHOICE OF SPECIALTY AND GEOGRAPHIC LOCATION: AN ANALYSIS OF THIRD PARTY PAYMENT LEVELS

This chapter examines the extent to which physician payment levels of third party payors, particularly those of Medicare and Medicaid, might be used to effect change in the geographic and specialty distribution of physicians. Very little is known about the factors which physicians consider when they set their fees or about third party sources of physician income. Because there is little data about physician income, their charges, and third party payments, particularly at the small geographic area level, no useful studies are available which compare Medicare and Medicaid payment levels and other physician fees. Nor are data available about the effect of Medicare and Medicaid fee levels on physician location.

To examine these questions, data from Medicare, Medicaid, and commercial insurers were analyzed for selected procedures. The pattern of physician geographic distribution was compared to the level of prevailing charges* for physician services and other variables which affect physician distribution. A sample of 32 representative counties was selected for detailed discussion in this chapter. Five-year changes in Medicare fees were analyzed by state and specialty to assess their effect on physician distribution. (A complete description of the data base, the analyses, and detailed findings are in Part III of this report.)

PROPORTION OF MEDICARE AND MEDICAID IN PHYSICIAN INCOMES

To the extent that the anticipated level of income is a factor in physician choice of specialty, geographic location, or both, the potential role of Medicare and Medicaid to influence that level is directly related to the proportion of physician income derived from these programs. No data were available to the study group to permit analysis of this relationship in any depth, since published data on physician income are not available at the state or local level and do not include a distribution of income by payment source. At the national level, Medicare and Medicaid accounted for 16.6 percent of expenditures for physician services in 1973.

---

*The prevailing charge for a specific procedure is a statistically determined limit on payment to physicians in a locality for that procedure based on the charges of physicians in similar specialties in the locality. At this time, the prevailing charges for Medicare Part B are set at the 75th percentile of the distribution of all physician customary charges for a particular procedure in a given area. The commercial insurers tend to establish their prevailings at about the 88th percentile of the distribution of physician customary charges.

Some data available from Medicare and from state Medicaid programs suggest that Medicare and Medicaid payments tend to be distributed disproportionatel among physicians in any geographic area. Medicare payments of over $25,000 were made to 51 percent of solo practitioners in Florida in 1974, and to 20 to 30 percent of solo practitioners in North Dakota, Arkansas, and Nebraska. At the other end of the scale, such amounts were paid to only one or two percent of these physicians in Wyoming, Kansas, Maryland, and Virginia in the same year. These percentages are compared in Table 1 to physician density, Medicare enrollment, and Medicare physician expenditures as a percent of all personal health expenditures. States with higher percentages of physicians receiving more than $25,000 from Medicare have no marked tendency to have particularly high or low numbers of physicians.

In 1973, 48 physicians in Maryland (0.5 percent of all physicians in the state) each billed Medicaid more than $20,000, for a total of $1.8 million, or 18 percent of total Medicaid expenditures in Maryland. 1/ Similarly, in New York State during 1973, 166 physicians (0.3 percent of the state's total) were each reimbursed more than $100,000; this was a total of $33 million, or 21 percent of the state's total physician payments for Medicaid. 2/

Similar results obtained in a 1975 study by Applied Management Sciences. All Medicaid claims submitted to the state Medicaid agency in New Jersey, Connecticut, and Indiana during 1973 were reviewed. This study found that 17 percent of Connecticut physicians treated 43 percent of the Medicaid recipients, 25 percent of the New Jersey physicians treated 69 percent of the Medicaid recipients, and 16 percent of Indiana physicians treated 54 percent of Medicaid recipients. 3/ Older physicians, pediatricians, and general practitioners were most likely to treat Medicaid patients. 4/ Young practicing physicians had the lowest Medicaid participation rate. Since they would most recently have made their location choice, this may indicate some sensitivity to the low level of Medicaid payments.

Although Medicaid recipients are generally a small proportion of the total population in any state, ranging from 3.9 percent in South Dakota to 15 percent in New York, in urban areas they may be clustered within defined neighborhoods. Without Medicaid support, it is possible that physicians who locate their practice in these areas would not be able to continue to practice in these locations. Thus, the existence of the Medicaid program may be an important factor in retaining physicians who currently practice in underserved low-income areas.

TABLE 1. STATES WITH THE HIGHEST AND LOWEST PERCENTAGES OF PHYSICIANS RECEIVING MORE THAN $25,000 IN MEDICARE PAYMENTS

State	Percentage of physicians earning more than $25,000 1974	Medicare physician expenditures as percentage of of total personal health care expenditures FY 1973	Part B Medicare enrollment as percentage of total population 1972	State rank in physician density 1973
Highest				
Florida	51	24.4	13.9	17
North Dakota	32	NA	10.7	46
Arkansas	30	17.7	12.1	48
Nebraska	20	14.5	11.8	30
Nevada	17	7.4	6.7	32
Lowest				
Indiana	4	8.1	9.2	40
Kansas	2	NA	11.7	31
Maryland	2	NA	7.3	6
Virginia	2	10.2	7.7	25
Wyoming	1	6.2	8.8	44

Source: U.S. Department of Health, Education, and Welfare, Social Security Administration, "National Health Expenditures, 1929-74," Social Security Bulletin (February, 1975), p. 19; DHEW, Social Security Administration, Medicare: Health Insurance for the Aged, Summary, 1967, pp. 1-5; Summary 1968, pp. 1-5; Summary 1969, pp. 1-5; DHEW, Social Security Administration, Current Utilization Tabulations (August 22, 1975), Table No. 5CBBIA.

MEDICARE AND MEDICAID PAYMENT PRACTICES

Most private health insurers pay the physician or beneficiary based on the physician's usual and customary charges.* Maximum limits, or prevailings, are usually established; the "maximum allowable payment" for a specific service or procedure to a physician under Part B of Medicare is known as the reasonable charge. This is either the actual charge for the service, the physician's customary charge for the service, or the prevailing charge in the locality, whichever is lowest. In addition, payment may not exceed payment made by the carrier for similar services for its own subscribers or policy holders.

All of these charges are developed over time and vary widely from community to community. Not only do the absolute levels differ, but the methods used by individual carriers to establish customary and prevailing charges also differ. In some areas, for example, different payment levels are calculated and applied for general practitioners and for specialists. Some carriers base fees on relative value units (RVU) related to the complexity and time requirements of the procedure, with the dollar amount of each RVU determined locally. In these cases, even though the same procedure may be assigned the same number of RVUs in different areas of the country, different dollar values of an RVU in different areas will result in variation in the actual payment earned by the physician. Individual physicians may adjust their fees for a specific income group, which affects their customary charges and therefore the level of prevailing fees. For example, some physicians charge lower fees to lower-income patients.

The Medicare and Medicaid programs differ in their reimbursement policies. The Medicare program conforms to certain common policies regardless of geographic location. The prevailing charge is set at the 75th percentile of the distribution of physician customary charges, and payment for the physician's services represents the reasonable charge for the service.

By contrast, the administrative practices for Medicaid reimbursement differ from state to state. The only uniform rule for all states is that the Medicaid payment should not exceed the Medicare payment for similar services. A recent survey of Medicaid programs conducted by the Institute of Medicine, the Office of the Deputy Assistant Secretary for Health Planning and Evaluation at HEW, and the Medical Services Administration of HEW found that of the 41 states responding, 20 used usual, customary, and prevailing charges or some combination of these methods. Twenty-one states used fee schedules. These differences must be considered when prevailing charges for Medicaid are compared to those of other insurers.

---

*A usual and customary charge is that amount which best represents the "actual" charges which were made for a given medical service by a physician to his patients in general. Under Medicare Part B, the median of the charges billed by a physician for performance of a specific procedure is designated as the customary charge for that procedure.

Medicare and many of the private insurers allow the physician the option of being paid directly by the third party payor (accepting assignment in Medicare), or being paid directly by the patient, who is then reimbursed by the third party payor at the level of either the physician's charge or the maximum allowable payment for that service, whichever is lower. If the physician accepts assignment, he may not bill the patient for any difference between his charge and the Medicare payment. In the Medicaid programs, the physician must accept the payment from the state Medicaid agency as full payment for his service (exclusive of the limited copayment arrangements which exist in Medicaid). Payment practices of the Medicare carrier affect the physician's decision whether to be paid by the third party payor or the patient, and in Medicaid whether to accept the patient at all. These payment practices and fees together influence the extent to which these programs may affect physician behavior.

A COMPARISON OF PREVAILING CHARGES

Data assembled for the analyses described in this chapter were compiled from several sources. Data were obtained from the Department of Health, Education, and Welfare on the prevailing charges used by Medicare carriers in Fiscal Year 1975 for 39 procedures in 292 geographic areas (known as reasonable charge localities) throughout the country.* Both charges were requested for locations in which the carrier used a different prevailing charge for specialists and general practitioners.

Similar data on 38 procedures were obtained from state Medicaid agencies in response to a questionnaire developed by the HEW Office of the Deputy Assistant Secretary for Health Planning and Evaluation, the Medical Services Administration, and the Institute of Medicine. Twenty-nine of the procedures were the same in both the Medicare and Medicaid surveys.

Data on the prevailing charges for 18 surgical procedures used by 22 participating commercial insurers during 1974 and 1975 were obtained from the Health Insurance Association of America (HIAA). Nine of the HIAA procedures were in both the Medicare and Medicaid data bases, and an additional nine are found in either Medicare or Medicaid.

HIAA data do not distinguish between specialists and general practitioners for reimbursement purposes. Medicare carriers and Medicaid agencies which do make this distinction each determine the process by which physicians are so designated.

---

*These data were obtained from Medicare carriers in 1974 in response to a request from the Social Security Administration. The Office of the Deputy Assistant Secretary of Health Planning and Evaluation supplied tapes of the data to the Institute of Medicine in May 1975.

The Social Security Administration furnished unpublished data from a five percent sample of Medicare claims for the years 1968 to 1972. These data included information on the frequency of Medicare procedures, the average physician charge per procedure, and the average actual payment by Medicare at the carrier level. Similar data from a sample of three states were obtained from Medicaid, and the frequency data for the counties in those states have been used to estimate the frequency of Medicaid procedures in all states. The HIAA data tape includes the frequency of payment for each procedure and the distribution of charges from the 50th to the 95th percentile.

Socio-economic data of more than 50 characteristics at the county level were obtained from the Bureau of Health Manpower of the Health Resources Administration. Included in their data base were AMA data on the number of physicians and other health resources, and Bureau of the Census economic and demographic data.

By disaggregating prevailing charge areas to the county level, it was possible to link each of these data sources and analyze the relationship among prevailing charges, physician density, and other economic and demographic variables. The following analyses are limited by the need to use data on prevailing charges rather than data on actual physician charges and payments. No information was available about the number of physicians who received payments above or below the prevailing charge for a particular procedure. Nor was it possible to obtain data on the range of actual charges for comparisons with the prevailing charge in an area. However, since the prevailing charges represent the general pattern of physician fees, particularly for comparisons among geographic areas in the United States, it was felt that prevailing charges could be used without risk of distorting the results.

Data were analyzed at the county level, since socio-economic, demographic, and physician density data were available only at that level. The effect of this constraint was that counties in the same reasonable charge area but with different cost-of-living indices had different adjusted prevailing charge data. Although these adjusted data more accurately reflect the fee levels in terms of the purchasing power of individuals living in the counties being examined, they may give the impression of more variation among certain counties, particularly adjacent counties, than actually exists.

Cost-of-Living Adjustment

The Bureau of Labor Statistics provided cost-of-living data for 39 Standard Metropolitan Statistical Areas (SMSA) and four regional rural areas. The study group used these data to develop a model which allowed adjustment for cost-of-living at the county level. (A detailed description of the model is in Part III of this report.) No data were available to construct an index adjusting for costs of operating a physician's practice which, it is recognized, also vary throughout the United States.

Table 2 shows the estimated cost-of-living and other selected characteristics for the 32 counties used in the following analysis. As would be expected, after allowing for regional differences, the cost-of-living for more densely populated areas tends to be greater than in less densely populated areas. Similarly, cost-of-living is lower in low per capita income counties than in high per capita income counties. It is highest in urban counties in the East, and lowest in the rural South.

Prevailing charges of fee screens* for procedures in different counties vary greatly across the United States, even after adjustment for cost-of-living differences.

Table 3 shows the national means and ranges of the prevailing charges for 11 selected procedures. The ranges vary greatly, with as much as a tenfold difference. For both Medicare and Medicaid, specialist prevailings tend to be slightly higher than those for general practitioners, although for 12 of the 39 Medicare procedures, the reverse is true. These 12 procedures tend to be the less complex or laboratory procedures. It has been suggested that the differences may represent price structures of separate markets. Specialists in group practice or practicing in hospitals may have lower costs than general practitioners. 5/

Medicare prevailings tend to be about 14 percent lower than corresponding prevailings used by commercial insurers. This is consistent with the fact that the former are set at the 75th percentile of the distribution of physician charges, and the latter are set at about the 88th percentile.

Medicaid prevailings average 72 percent of the corresponding Medicare prevailings and 68 percent of commercials across all counties in the United States. The considerable variation in these figures by procedure and locality is indicated in Table 4. Medicare prevailing charges for the three surgical procedures tend to be about 96 percent of HIAA fees in the high cost-of-living areas, and between 88 and 91 percent of HIAA fees in the remaining counties. Medicaid prevailing charges tend to be much lower, at between 55 and 70 percent of HIAA in the high cost-of-living counties and between 83 and 133 percent of HIAA in the low cost-of-living counties.

Data are not available from the private insurance companies on charges for office visits. A comparison of Medicare and Medicaid in the 32 counties

---

*Fee screen is a term used by the Social Security Administration to describe the customary, prevailing, and reasonable charge amounts established for physician services by the carrier at the beginning of each fiscal year. It implies that charges (or fees) in excess of these computed rates are "screened out," thus providing payment to the physician by the carrier at a level lower than the actual charge. As a general term, fee screens is used synonymously with "prevailing charges" or "prevailings" in this chapter.

TABLE 2. SELECTED COUNTIES RANKED BY COST-OF-LIVING INDEX

Counties	Region	Cost-of living index	Total population 1972 (1,000)	Physicians per 100,000
High cost-of-living				
New York, NY	East	123	1,485	834
Suffolk, MA	East	119	710	677
Montgomery, MD	East	108	565	285
San Francisco, CA	West	106	680	558
San Mateo, CA	West	106	558	189
New Haven, CT	East	104	754	279
Montgomery, PA	East	103	642	257
Cook, IL	Midwest	102	5,573	198
Oakland, MI	Midwest	102	924	198
Medium cost-of-living				
Providence, RI	East	100	589	215
Cuyahoga, OH	Midwest	100	1,764	238
Dane, WI	Midwest	97	302	352
Madison, IN	Midwest	96	141	79
Santa Clara, CA	West	96	1,138	230
Blair, PA	East	96	140	118
Denver, CO	Rockies	95	527	446
Broward, FL	South	95	705	182
Salem, NJ	East	94	61	75
Lewis, NY	East	94	23	52
Coos, NH	East	94	34	106
Woodbury, IA	Midwest	93	106	110
Salt Lake, UT	Rockies	91	484	232
Davidson, TN	South	90	458	264
Low cost-of-living				
Harris, TX	South	89	1,878	175
Muskingum, OH	Midwest	88	78	100
Adair, MO	Midwest	88	24	13
Orleans, LA	South	88	596	332
Travis, TX	South	86	336	151
Sheridan, KS	Rockies	84	4	25
Lyman, SD	Rockies	84	4	50
Copiah, MS	South	83	25	52
Henry, GA	South	83	25	24

Source: G. A. Roback, Distribution of Physicians in the U.S., 1972 and 1973 (Chicago: American Medical Association, 1973 and 1974).

Note: 100=National Average of the Bureau of Labor Statistics Sample, December 1974.

a/Distribution of Physicians in the U.S., 1973, American Medical Association, Chicago 1974.

b/ Distribution of Physicians in the U.S., 1972, American Medical Association, Chicago 1973.

TABLE 3. NATIONAL MEAN AND RANGE OF PREVAILING CHARGES, SELECTED PROCEDURES BY TYPE OF THIRD PARTY PAYOR.

Procedure	Medicare GP	Medicare specialist	HIAA	Medicaid GP	Medicaid specialist
Initial office visit (9002) a/					
Mean	$ 32	$ 39	NA	17	19
S. D.	(11)	(11)		(13)	(14)
Range	8-72	10-90		6-72	6-72
Followup office visit (9004)					
Mean	8	9	NA	6	6
S. D.	(2)	(2)		(3)	(3)
Range	5-23	5-23		5-20	5-20
Initial hospital visit (9022)					
Mean	38	45	NA	24	25
S. D.	(11)	(15)		(12)	(12)
Range	13-80	16-114		10-60	10-60
Followup hospital visit (9024)					
Mean	9	10	NA	8	8
S. D.	(2)	(2)		(4)	(4)
Range	5-24	5-24		3-24	3-24
Cholecystectomy (3515)					
Mean	428	435	504	332	349
S. D.	(57)	(60)	(59)	(91)	(110)
Range	321-798	242-813	361-863	102-852	107-732
Repairing inguinal hernia (3631)					
Mean	262	271	313	256	270
S. D.	(35)	(38)	(35)	(78)	(89)
Range	168-476	141-528	213-506	91-476	97-551
Dilation of urethra (4031)					
Mean	17	17	15	11	10
S. D.	(6)	(7)	(5)	(9)	(8)
Range	5-54	5-57	8-37	5-58	4-53
Prostate electrosection (4321)					
Mean	560	545	622	397	426
S. D.	(92)	(78)	(84)	(132)	(111)
Range	204-952	256-952	397-954	146-754	146-754
Extraction of lens (5611)					
Mean	533	532	570	NA	NA
S. D.	(73)	(82)	(90)		
Range	250-864	323-909	396-1183		
Tonsillectomy (2992)					
Mean	NA	NA	157	93	98
S. D.			(22)	(33)	(37)
Range			148-250	33-188	32-210
D & C, nonobstetrical (4612)					
Mean	NA	NA	151	99	98
S. D.			(21)	(30)	(34)
Range			106-262	32-240	31-211

Source: Institute of Medicine consolidated data tape.
Note: Prevailing charges adjusted for cost-of-living.
a/Numbers in parentheses are the 1964 California Relative Value Scale codes for the procedure.

TABLE 4. COMPARISON OF SPECIALIST PREVAILING CHARGES FOR SELECTED PROCEDURES IN 32 COUNTIES

County	Initial office visit		Cholecystectomy			Repair inguinal hernia			Dilation of urethra		
	Medicare	Medicaid	Medicare	Medicaid	HIAA	Medicare	Medicaid	HIAA	Medicare	Medicaid	HIA
High cost-of-living (>100)											
New York, NY	$28	$12	$813	$195	$606	$528	$114	$404	$22	$10	$28
Suffolk, MA	21	13	378	294	420	210	168	252	17	13	NA
Mongtomery, MD	37	6	370	200	523	231	117	324	13	10	25
San Francisco, CA	47	34	547	435	580	339	256	353	21	21	17
San Mateo, CA	47	34	547	435	580	339	256	353	14	21	17
New Haven, CT	34	17	490	288	511	294	168	290	14	14	NA
Montgomery, PA	38	10	388	146	468	242	97	301	14	5	15
Cook, IL	49	NA	588	NA	588	343	NA	343	9	NA	14
Oakland, MI	47	25	441	441	461	259	245	272	14	15	26
Average fee	39	19	507	304	526	309	178	321	15	14	20
Medium cost-of-living (90-100)											
Cuyahoga, OH	40	NA	400	NA	473	250	NA	291	15	NA	20
Providence, RI	35	20	450	225	500	257	150	300	10	13	NA
Dane, WI	15	NA	412	NA	486	247	NA	315	10	NA	NA
Madison, IN	32	16	385	385	437	244	245	286	10	17	11
Santa Clara, CA	51	37	576	448	623	367	262	384	16	16	18
Blair, PA	31	10	364	156	416	234	104	291	10	5	10
Denver, CO	42	44	478	302	526	252	151	268	10	11	10
Broward, FL	34	21	578	321	727	368	187	440	21	8	17
Salem, NJ	19	37	441	321	502	269	194	322	14	14	NA
Lewis, NY	44	16	446	255	446	260	149	270	16	13	12
Coos, NH	31	27	452	381	426	266	253	288	10	11	19
Woodbury, IA	37	NA	430	430	430	258	258	268	8	8	19
Salt Lake, UT	38	34	384	360	494	274	253	279	13	7	NA
Davidson, TN	38	NA	444	NA	500	277	NA	323	11	NA	9
Average fee	35	26	446	326	499	273	200	309	12	11	14
Low cost-of-living (<90)											
Harris, TX	44	28	561	561	620	344	345	375	28	22	14
Muskingum, OH	34	NA	414	NA	494	227	NA	317	13	NA	13
Adair, MO	30	23	417	341	500	255	227	338	11	6	NA
Orleans, LA	28	8	568	409	637	397	307	388	22	20	NA
Travis, TX	40	41	523	517	546	334	335	317	29	45	NA
Sheridan, KS	39	12	443	417	454	255	238	312	22	12	NA
Lyman, SD	34	29	409	429	490	255	250	284	17	18	NA
Copiah, MS	17	12	416	271	535	267	181	275	11	9	NA
Henry, GA	82	45	505	602	538	329	361	329	11	28	18
Average fee	39	25	473	443	535	296	280	326	18	20	15

Source: Institute of Medicine consolidated data tape.
Note: Prevailing charges are adjusted for cost-of-living.
NA:Not available.

shows that Medicaid pays at the level of 49 percent of the Medicare fee screen in the high cost-of-living counties and between 64 and 74 percent in the others.

Since the definitions of "initial office visit," "followup office visit," "initial hospital visit," and "followup hospital visit" are broad, they probably cover a wide range of different diagnostic and therapeutic services. Thus, the variation in the charges for these procedures is probably less meaningful than the variation among other, more specific procedures.

The cumulative effect of all physician charges in a given area may be assumed to be important for physician density and use of patient care services. To permit a comparison of the overall relative payment levels of a particular third party payor in a county compared to other payors or other counties, procedure and county indices were computed. For each set of Medicare prevailings, the mean national prevailing charge for each procedure was set equal to 100 and the adjusted prevailing charge for each procedure in each county was assigned an index number indicating its relationship to the Medicare national average. Thus, an index of 155 for New York county would indicate that adjusted prevailing charges in New York county were 55 percent greater than the Medicare national average. In computing the procedure index at the county level, each procedure was weighted by a factor representing the product of its mean actual payment and its frequency of occurrence in that county. Weighted countywide averages of the index numbers for the procedures in each county were calculated to establish a series of county indices. County indices were also computed for groups of medical, surgical, radiological, and laboratory procedures. Similar computations were made for HIAA and Medicaid prevailings with their index numbers also made relative to the Medicare national average.*

The highest cumulative Medicare specialist index in all counties in the United States (175 in Monroe, Florida)** was almost three times as great as the lowest such index (62 in Adams, Indiana); Manhattan was the second highest at 155. There was a smaller range, from 79-167, in the HIAA indices. Again, Monroe County, Florida had the highest index number.

The index numbers in Table 5 show inconsistent relationships among prevailings in the same county. In most counties, there are substantial differences in the medical and surgical indices. Since prevailings are established at different percentiles, one would expect the Medicare surgical indices to be about 15 points lower than the HIAA indices for the same county; in four

---

*Cumulative county indices for Medicaid had not been completed at time of publication.

*Monroe County is in the same reasonable charge area as Dade County, where Miami is located. Monroe County has a higher index figure because the prevailing charges, in general, are high, and because the low cost-of-living index, 83, inflates its overall index.

TABLE 5. THIRD PARTY COUNTY INDICES FOR 32 SELECTED COUNTIES

County/state	Medicare specialist indices County	Medical	Surgical	HIAA Index
New York, NY	155	160	152	135
Broward, FL	137	146	123	143
Cook, IL	120	125	111	121
Henry, GA	118	128	103	112
Santa Clara, CA	114	110	125	133
Harris, TX	112	110	116	130
Travis, TX	110	113	098	111
San Francisco, CA	109	101	129	125
Orleans, LA	109	108	113	132
San Mateo, CA	107	102	119	125
Salem, NJ	101	107	090	107
New Haven, CT	098	097	100	101
Suffolk, MA	096	105	083	089
Sheridan, KS	095	092	090	100
Oakland, MI	094	097	096	095
Adair, MO	093	097	086	103
Montgomery, PA	092	097	088	103
Providence, RI	092	093	091	102
Montgomery, MD	091	095	086	114
Davidson, TN	091	087	089	104
Woodbury, IA	090	087	095	090
Lewis, NY	090	082	094	096
Cuyahoga, OH	090	094	086	099
Muskingum, OH	090	095	080	106
Salt Lake, UT	090	100	080	096
Coos, NH	088	089	088	095
Denver, CO	086	083	089	103
Lyman, SD	086	075	093	103
Dane, WI	084	075	092	106
Madison, IN	082	083	080	096
Blair, PA	080	074	085	093
Copiah, MS	076	061	089	104

Source: Institute of Medicine consolidated data tape.

counties, however, Medicare exceeds the HIAA total. This may be due to anomalies in administrative practices or to the inclusion of different procedures in the two indices. Cross tabulations designed to uncover relationships between the level of county indices and possible explanatory variables such as average per capita income in the county, SMSA population, and region of the United States exhibited several patterns for these series (See Appendix).

To permit a more rigorous analysis of the factors which might explain the variations in aggregate Medicare prevailing charge levels between counties, multiple regression techniques were applied, using as explanatory variables for all counties per capita income, physicians per 100,000 population, the number of medical schools, the number of hospital beds, total population, the percent of the population over 65, and region of the United States.* For all regressions and tables, physicians per 100,000 population includes interns and residents, since similar results were found when they were excluded.

In general, socio-economic factors did not explain much of the variation in prevailing charges. The regression equation as a whole explained 18 percent of the variation in prevailing charge levels. This could stem from incomplete specification of the relationship since data were not available on certain key variables such as physician income, the proportion of income from Medicare and Medicaid, physician hours worked per week, physician productivity, and administrative practices of carriers. The estimated values of all the explanatory variables used in the regression were statistically significant (except for the percentage of the population over 65), but not very large. Thus, to elicit a one point increase in the average county index, the average per capita income would have to increase by $1,000, or the number of physicians per 100,000 population would have to increase by 100.

The strongest determinant of the level of prevailing fees was the region of the United States. After holding other variables constant, prevailing fees were 17 percent higher in the West than in the Midwest.

A second equation was specified to explain variation in Medicare prevailing indices not adjusted for cost-of-living. This equation included the same independent variables used in the "real prevailing fee" equation; the unit of analysis was the individual county. (Detailed results of the regression are in Part III.) Results indicated that the independent variables explain 31 percent of the variation in the prevailing Medicare fees. This is highly significant. With the exception of two independent variables -- concentration of the elderly and number of medical schools -- all independent variables were statistically significant.

---

*The multiple regression equation should not be interpreted as representing a demand curve or supply curve, but as a least squares line through a series of demand-supply equilibrium points of individual counties. For a more detailed discussion, see Part III.

Similar to the regression results for price-adjusted Medicare fees, higher levels of physician density were associated with higher levels of Medicare prevailing fees. An increase in 70 physicians per 100,000 population will result in an increase of the fee index by one percent. An addition of 1,000 hospital beds will increase the index by one percent. An addition to the SMSA population of 100,000 persons will result in a three percent increase in the Medicare specialist index, and a per capita income increase of $1,000 dollars will raise the index by two percent. After holding other variables constant, Medicare fees were found to be 16 percent higher in the West, eight percent higher in the East, five percent higher in the South, and one percent in the Rockies-Great Plains than in the Midwest.

Regression techniques indicated that the highest Medicare prevailing fees, even after adjustment for cost-of-living differences, are in wealthy counties located in large western metropolitan areas, with heavy concentrations of physicians and hospital beds. Lowest fees are most likely to be found in low-income rural Midwest counties, scarce in hospital beds and physicians.

PREVAILING CHARGE LEVELS AND PHYSICIAN DENSITY

The main hypothesis underlying the analyses of fee screens was that there is an inverse relationship between the level of physician fees in a geographic area and the number of physicians. This hypothesis was based on the elementary law of supply and demand in economic theory which, stated simply, assumes that the price of a good acts as a barometer in allocating scarce resources. Assuming free movement of buyers and sellers, an increase in the number of sellers will exert pressure for prices to fall, with a subsequent exit of sellers from the market. If the quantity of a resource exceeds its availability in the market, the price of the resource will rise, encouraging new sellers to enter the market. In the context of this study, this law would suggest that the price of physician services, as reflected in the general pattern of fees in an area, would in some way be related to the supply of physicians; if physicians were relatively scarce, one might expect their fees to be high in comparison with the national average. Alternatively, if the number of physicians per 100,000 population (physician density) were high, then relatively low physician charges would be predicted.

An examination of these relationships with data on prevailing charges shows that traditional economic theory does not apply. If any relationship can be discerned between physician density and prevailing charge data at the county level, it would appear to be to the contrary; physician density and prevailing charge indices seem to move in the same direction. That is, counties with higher physician density also seem to have higher prevailing charge indices. Much of the variation, however, remains unexplained.

In Table 6, the 32 selected counties are grouped to represent high, low, and medium physician densities. Some ratios in the high-density counties are misleading since one or more major medical centers are located within their boundaries, and many more people obtain their medical care inside the county than are residents. Even if adjustments could be made for this factor, however, the high-density counties would probably still encompass many more physicians relative to the rest of the counties. The data illustrate that in general, the physician-to-population ratio is lower in rural counties than in more urban counties.

Multiple regression techniques were applied in an effort to identify precisely what role, if any, is played by fees (as represented by cross-section data on prevailing charges at the county level) in explaining physician location (see Part III for a detailed description of this regression).

In the first equation, the independent variables were the Medicare specialist county index, the number of medical schools, per capita income, metropolitan or non-metropolitan population, population size of metropolitan areas, the percentage of the population over 65, and the region of the United States. The results, which are statistically significant, indicate that where prevailing charge levels are higher, physician density is also higher; more precisely, the ratio of physicians to 100,000 population increases by one physician for every three point increase in the Medicare county specialist index. The most important variable was the number of medical schools in the county. The percentage of the population over 65 was negatively related to physician location but was not statistically significant. This equation explained 35 percent of the variation in physician density.

When the Medicare and HIAA surgical indices were each substituted into the equation for the Medicare cumulative index, neither showed a significant relationship to physician density. The Medicare medical index, however, was highly significant, with high medical indices associated with high physician density.

Similar results were obtained when non-adjusted Medicare fees were substituted for adjusted fees.

Conventional economic theory that would predict that lower fees would be associated with an abundance of physicians and that higher fees would be associated with a relative scarcity of physicians was not shown by HIAA and Medicare indices for specialists. Rather, the contrary seems to be true; higher physician density tends to be associated with higher countywide indices. These results indicate that the Medicare and private third party payment systems in their present form, by passively reinforcing the current fee

TABLE 6. RANKINGS OF PHYSICIAN AND THIRD PARTY PAYOR INDICES FOR 32 SELECTED COUNTIES

County	Physicians a/ per 100,000 population	Medicare specialist Index	Rank	HIAA Index	Rank
High physician density					
New York, NY	802	155	1	135	2
Suffolk, MA	642	96	12	89	23
San Francisco, CA	562	109	8	125	6
Denver, CO	459	86	20	103	14
Dane, WI	357	84	21	106	12
Orleans, LA	323	109	8	132	4
Montgomery, MD	313	91	17	114	9
New Haven, CT	281	98	11	101	16
Davidson, TN	280	91	17	104	13
Montgomery, PA	267	92	16	103	14
Medium physician density					
Salt Lake, UT	243	90	18	96	19
Santa Clara, CA	235	114	5	133	3
Cuyahoga, OH	232	90	18	99	18
Providence, RI	218	92	16	102	15
Oakland, MI	215	94	14	95	20
Broward, FL	205	137	2	143	1
Cook, IL	202	120	3	121	7
San Mateo, CA	200	107	9	125	6
Harris, TX	184	112	6	130	5
Travis, TX	158	110	7	111	10
Blair, PA	120	80	23	93	21
Coos, NH	114	88	19	95	20
Woodbury, IA	110	90	18	90	22
Muskingum, OH	106	90	18	106	12
Low physician density					
Madison, IN	81	82	22	96	19
Salem, NJ	72	101	10	107	11
Copiah, MS	53	76	24	104	13
Lewis, NJ	51	90	18	96	19
Lyman, SD	44	86	20	103	14
Sheridan, KS	25	95	13	100	7
Henry, GA	24	118	4	112	9
Adair, MO	13	93	15	103	14

Sources: G. A. Roback, Distribution of Physicians in the United States, 1973 (Chicago: American Medical Association, 1974); Institute of Medicine consolidated data tape.

a/Includes interns and residents.

differences, cannot be effective in improving the geographic distribution of physicians. Because the system provides no effective market mechanism to regulate the supply of physicians, any effort to offer economic incentives through the fee structure to underserved areas will require substantial changes in the current physician payment mechanism. Such changes would affect the methods for calculating the prevailings and the policy of automatically accepting increases in maximum allowable fees in areas with high physician densities. Without controls on physician fees in high-density areas, there is no evidence to suggest that the present payment systems will bring about the desired changes in the distribution of physicians.

INFLUENCE OF MEDICARE PAYMENTS ON ASSIGNMENT RATES

The net assignment rate is the percentage of claims filed with Medicare for which physicians agree to receive payment directly from Medicare at the reasonable charge level stipulated. The rate of assignment is one measure of the financial burden on Medicare patients for physician services. It is also an important indicator of the potential leverage that can be exerted on physician behavior by changes in payment practices and the level of maximum allowable payments.

Social Security Administration data on assignment rates show that there has been a steady decline from about 64 percent of all Medicare claims in early 1969 6/ to just below 50 percent in 1975. 7/ Although some states showed an increase in net assignment rates from 1969 to 1974, there were declines in nine of the ten federal regions.

A study conducted for the Health Insurance Benefits Advisory Council (HIBAC) of assignment rates in California, Massachusetts, New York, New Jersey, Florida, and Ohio identified two major factors as discouraging acceptance of assignment: patient ability to pay from personal funds or through other health insurance, and substantial differences between the physician's customary charge and the Medicare maximum allowable payment. Factors which encouraged acceptance of assignment were: large bills, the fact that the patient was also a Medicaid recipient, possibility of speedy and assured payment, and a close personal relationship with the patient. 8/ An econometric study 9/conducted for the same report led to the conclusion that:

> Physicians respond to economic incentives (or disincentives), such as the patient's ability to pay a higher fee than Medicare's 'reasonable' charge and a higher than average level of Medicare fees in some areas, when making decisions concerning their acceptance of assignment. In fact, they respond more to economic incentives perhaps than to differences in the carriers' methods of Medicare reimbursement. 10/

To explore the question of determinants of assignment further, particularly the stability of determinants over time, the study group used data from the five percent sample of Medicare claims for the period from 1969 to 1972. The independent variables were carrier rate of reduction (percent of physician claims for which the carrier payment was less than the physician charge), per capita income, percent of population over age 65, physician density, and mean allowed charge. The regression equations explained 37 percent of the variability in carrier assignment rates in 1969, 48 percent in 1970, and 46 percent in 1971 and 1972, and were 99 percent significant in all years.

Carrier rate of reduction and per capita income were highly significant in all years. An increase of one percent in Medicare claims not paid in full resulted in a decline in the net assignment rate of between 1.3 and 1.5 percent. In 1972, the assignment rate was more sensitive to the rate of reduction in the previous year than in the current year.

Regression results indicated that, on a carrier level, as per capita income increased, the assignment rate declined, but the rate of decline was less at higher per capita income levels, than at lower per capita income levels. This was confirmation of the previous findings that physicians are likely to attempt to obtain payment beyond insurance coverage according to a patient's ability to pay.

Other variables were significant in some years, but not for all years. Concentration of the elderly and high physician density tended to depress assignment rates. High mean allowed charges were associated with increased assignment rates.

These results indicate that although assignment rates are declining, their determinant factors are remaining stable. The two primary determinants are the rate of reduction in charges and county per capita income. It appears that attempts to curtail the rate of growth of physician fees in selected areas would inevitably lead to a decline in the assignment rates in those areas, burdening the patient with additional medical payments. With a current national assignment rate of only slightly more than 50 percent, the effect on lost physician income would be considerably less than would be the case with a system of mandatory assignment. This would further reduce the amount of leverage that can be exerted on physician behavior.

COMPARATIVE RATES OF INFLATION OF MEDICARE ALLOWED CHARGES

Medicare payments for physician services have implications for specialty distribution as well as for geographic distribution. One common criticism of third party reimbursement policies is that they are oriented toward procedures performed and thus discriminate against primary care physicians who may provide preventive care services. Others have criticized third party payors for allowing surgical fees to advance at a more rapid pace than those for office visits.

Using the five percent sample data from Medicare, a time series analysis of changes in Medicare payment levels by specialty and geographic areas was made. Under the assumption that the mix of services has remained relatively stable, two questions were addressed:

- Has the rate of increase in average payments to physicians been greater for procedure oriented specialties than for primary care specialties?

- What effect do economic variables have on the carrier rate of inflation?

Table 7 addresses the first question. It shows that the average five-year rate of change for all specialties was 23 percent, ranging from a high of 41 percent in orthopedic surgery to a low of 11 percent in radiology. 11/ General practice and internal medicine both showed below average rates of change; most of the procedure-oriented specialties were above the average. These data suggest that there was an economic advantage for procedure oriented specialists participating in the Medicare program during the period under study.

These different rates of change cannot be explained without additional data. The corresponding assignment rates by specialty are not available, for example.

Economic variables were included in the equation specified to address the question of carrier differences in the rate of inflation. This equation explained only nine percent of the variation for the years from 1968 to 1972. The regression results were not statistically significant. The independent variables were physician density, per capita income, percent of population over age 65, changes in assignment rates, mean allowed charge, and region. None of these was significant. Changes in physician density had no significant effect on the rate of change in the mean allowed charge.

Data on administrative practice of carriers were not available. To the extent that the third party payor mechanism shields both consumers and providers from the rigors of the market place, it should not be surprising that economic variables do so little to explain Medicare fee inflation.

Future Research

Most research to date has focused on explaining the distribution of physicians. More information is needed about net change in physician distribution since Medicare and Medicaid began, with particular reference to the level of actual fees and payments. At this time, migration data on individual physicians are not available, precluding analyses of the determinants of net changes in physician distribution since 1965.

Medicare and Medicaid comprise 16.6 percent of total United States expenditures for physician services. Although these programs probably contribute

TABLE 7. RATE OF CHANGE IN MEDICARE ALLOWED CHARGES BY SPECIALTY (1968-1972)

Specialty	Five year rate of change
Above average	
Orthopedic surgery	41
Anesthesiology	39
General surgery	35
Ophthalmology	24
Below average	
Other specialties	19
Urology	18
Internal medicine	18
General practice	13
Radiology	11
All specialties	23 a/

Source: U.S. Department of Health, Education, and Welfare, Social Security Administration, Office of Research and Statistics, "Medicare Five Percent Sample" (unpublished data).

a/This average is weighted according to the total volume of allowed Medicare dollars received by each specialty.

a small portion to most physician's total revenues, for those physicians who do receive large amounts of Medicare and Medicaid payments, the level of maximum allowable charges may influence their behavior. Thus, a change in these payment levels might well mean that physicians who currently find it not worth their time to accept Medicaid patients might be induced to do so. Continuation of Medicaid payment levels could, at their present level of 72 percent of Medicare, well limit the availability of physician services to Medicaid patients by discouraging new physicians to locate in Medicaid areas or by motivating physicians currently serving these patients to move elsewhere. There is clearly a need for more research on the role played by Medicare and Medicaid in physician earnings and the policy implications of this role.

The extent to which changes in the administrative practices and payment levels of these programs can influence the specialty mix and geographic location of physicians is still uncertain. Economic variables are only one set of factors which affect physician choice, and they do not appear to be the major influence to most physicians. Further, since Medicare and Medicaid are not the major source of income for the majority of physicians, marginal changes in these programs may have little impact on the average physician. Further analyses are needed to determine whether the magnitude of change needed to cause an effect is worth the costs, short of a national health insurance system.

* * *

FINDINGS

The current usual and customary reimbursement mechanism is unlikely to ameliorate the geographic distribution problem. Contrary to conventional economic theory, high Medicare prevailing fees are found in high physician density areas. High fees also tend to occur in areas of metropolitan character, with a relatively high concentration of hospital beds, and where one or more medical schools are located. West coast counties with these characteristics tend to have higher fees than other parts of the country.

After adjustment for cost of living differences, by county, prevailing fees for identical procedures show as much as a tenfold difference between the highest and lowest.

Medicare mean prevailings tend to be lower than the commercial insurers by about 14 percent. This is consistent with the fact that Medicare prevailings are set at the 75th percentile of the distribution of physician fees, whereas the commercials set their prevailings at approximately the 88th percentile.

Medicaid prevailings were found to average about 72 percent of the Medicare prevailing level. In some areas, the Medicaid prevailing for an individual procedure may be less than 20 percent of the corresponding Medicare prevailing.

Medicare assignment rates have declined from 64 percent in 1969 to just below 50 percent in 1975. Per capita income and the carrier rate of reduction explain much of the variation in assignment rates among regions.

From 1968 to 1972, Medicare fee inflation was greater for procedure oriented specialties such as general surgery and ophthalmology than for specialties such as internal medicine and general practice.

Economic variables did not explain the varying rates of fee inflation from carrier to carrier from 1968 to 1972. Of particular interest was the lack of association between changes in physician density and Medicare fee inflation.

REFERENCES

Chapter 10

[1] State of Maryland, Maryland Medical Assistance Program Narrative and Fiscal Information, 1973 (Baltimore: Maryland Department of Health and Mental Hygiene, State Medical Assistance Program, 1974).

[2] New York State Medical Agency, personal communication.

[3] Applied Management Sciences, A Study of Selected State Medicaid Programs: An Analysis of Utilization, Cost and Quality, Executive Summary (June 1975), p. 12.

[4] Ibid., p. 13.

[5] George J. Schieber et al., Physician Fee Patterns Under Medicare: Descriptive Analysis (in press).

[6] U.S. Department of Health, Education, and Welfare, Social Security Administration, Office of Research and Statistics, Assignment Rates for Supplementary Medical Insurance Claims, Calendar Year 1973, No. (SSA) 75-11702 (December 5, 1974).

[7] DHEW, Social Security Administration, Office of Research and Statistics, unpublished data.

[8] U.S. Department of Health, Education, and Welfare, Social Security Administration, Health Insurance Benefits Advisory Council, A Report on the Results of the Study of Methods of Reimbursement for Physicians' Services Under Medicare, 2 vols., No. (SSA) 92-73 (July 1973), vol. 1: A Study to Determine Factors Physicians Take Into Consideration in Deciding Whether to Accept Assignments, Billing Arrangements Physicians Make to Cope with the Deductible and Coinsurance Features of Reimbursement and the Nature of these Billing Practices, by J. T. Wakeley et al.

[9] HIBAC, vol. 2, pt. 1: *The Effects of the Medicare Methods of Reimbursement on Physicians' Fees and on Beneficiaries' Utilization,* by Robert R. Nathan Associates, Inc.

[10] HIBAC, p. 22.

Chapter 10

APPENDIX

Tables A-1 to A-8 are cross tabulations displaying the relationships between Medicare and commercial (HIAA) fee indices and selected socio-economic variables. Fee indices in the first four tables have been adjusted for cost-of-living differences. Indices in the other four have not been adjusted for cost-of-living differences.

Data for all socio-economic variables were obtained from the Area Resource File of the Bureau of Health Manpower, DHEW. Population data are for 1972. Physician data are based on the 1972 American Medical Association survey and 1971 American Osteopathic Association survey. Income data derive from the 1970 census. All prevailing charge indices were developed by the Institute of Medicine based on Medicare and Medicaid prevailing charges for 1975.

TABLE A-1. MEAN, RANGE, AND STANDARD DEVIATION OF THIRD PARTY PREVAILING INDICES, BY COUNTY RATIO OF PHYSICIANS TO 100,000 POPULATION

Physicians per 100,000 pop.*	0-24	25-74	75-124	125-174	175-224	225-299	300+
Number of counties	354	1,727	653	197	71	35	35
Medicare Specialist Cumulative Index							
Mean	93.2	91.5	93.0	97.0	99.2	99.6	99.3
Range	69-118	62-143	64-175	64-143	72-155	84-158	83-155
S. D.	13.7	12.1	11.4	14.1	16.1	15.9	14.6
HIAA Surgical Index							
Mean	104.9	105.3	105.2	108.8	108.7	106.3	107.8
Range	84-136	79-158	82-167	84-161	83-148	86-151	89-135
S. D.	8.5	10.0	11.5	15.7	14.6	16.0	11.7
Medicare Specialist Medical Index							
Mean	90.9	88.3	91.2	96.6	98.0	101.8	100.9
Range	57-128	52-146	57-197	61-147	69-166	74-178	75-160
S. D.	19.1	16.6	15.1	17.0	19.3	20.4	17.2
Medicare Specialist Surgical Index							
Mean	93.7	92.8	93.7	97.3	99.6	96.6	96.8
Range	63-120	53-146	63-149	60-144	74-139	76-134	82-152
S. D.	10.5	11.2	11.9	14.8	15.7	13.9	14.5
Medicare GP Cumulative Index							
Mean	93.5	92.0	94.0	98.0	99.8	99.3	99.7
Range	63-150	60-153	63-208	62-158	74-180	73-188	72-134
S. D.	18.2	16.2	15.3	18.1	18.7	22.4	17.4

*Includes interns and residents.

TABLE A-2. MEAN, RANGE, AND STANDARD DEVIATION OF SELECTED PREVAILING THIRD PARTY INDICES BY SIZE OF SMSA POPULATION

SMSA population	Non-SMSA	10,000-249,999	250,000-999,999	1,000,000+
Number of counties	2,468	166	267	171
		Medicare Specialist Cumulative Index		
Mean	92.1	93.7	94.0	96.3
Range	64-175	66-130	62-137	63-158
S. D.	12.0	13.3	13.3	16.1
		HIAA Surgical Index		
Mean	105.9	102.8	103.9	107.7
Range	81-167	84-142	86-161	79-151
S. D.	10.6	10.6	12.0	14.9
		Medicare Specialist Medical Index		
Mean	88.9	93.5	94.3	97.2
Range	57-197	55-133	52-147	53-178
S. D.	16.5	16.7	17.8	19.5
		Medicare Specialist Surgical Index		
Mean	93.5	92.6	93.2	95.5
Range	63-149	58-131	60-132	53-152
S. D.	11.6	12.2	11.9	14.9
		Medicare GP Cumulative Index		
Mean	92.7	94.3	96.3	96.7
Range	62-208	63-150	60-158	65-188
S. D.	16.0	18.9	18.5	17.3

TABLE A-3. MEAN, RANGE, AND STANDARD DEVIATION OF PREVAILING THIRD PARTY FEE INDICES, BY REGION

Region	South	East	West	Midwest	Rockies
Number of counties	1,358	244	153	738	579
			Medicare Specialist Cumulative Index		
Mean	95.8	92.2	109.9	88.0	88.8
Range	68-175	72-155	74-143	62-120	64-126
S. D.	14.2	12.4	11.7	8.3	8.0
			HIAA Surgical Index		
Mean	108.7	100.0	124.9	101.5	101.2
Range	88-167	81-150	90-161	79-136	84-128
S. D.	9.8	10.6	17.0	7.3	8.0
			Medicare Specialist Medical Index		
Mean	93.6	92.4	104.3	85.5	84.9
Range	58-197	70-160	65-146	52-132	61-134
S. D.	19.6	16.0	12.7	13.2	11.2
			Medicare Specialist Surgical Index		
Mean	96.7	91.7	118.8	89.7	88.2
Range	74-149	74-152	86-146	53-115	72-113
S. D.	10.0	11.3	15.2	12.2	7.1
			Medicare GP Cumulative Index		
Mean	99.8	91.0	109.3	84.1	89.1
Range	60-208	74-136	66-139	62-153	74-116
S. D.	19.9	11.7	12.9	9.2	6.8

TABLE A-4. MEAN, RANGE, AND STANDARD DEVIATION OF THIRD PARTY PREVAILING INDICES, BY AVERAGE COUNTY PER CAPITA INCOME

Per capita income	Less than $1,500	$1,500-1,999	$2,000-2,499	$2,500-2,999	$3,000+
Number of counties	132	701	1,113	777	329
			Medicare Specialist Cumulative Index		
Mean	90.2	94.9	90.9	92.1	95.5
Range	64-119	64-119	64-133	62-175	63-158
S. D.	14.4	13.4	11.2	12.0	14.0
			HIAA Surgical Index		
Mean	107.9	107.0	104.8	104.5	107.3
Range	89-136	88-152	79-158	79-167	82-161
S. D.	7.3	8.7	9.8	12.5	15.9
			Medicare Specialist Medical Index		
Mean	86.2	92.6	87.7	89.9	95.3
Range	61-122	58-128	55-147	52-197	53-178
S. D.	20.5	18.8	15.3	15.8	17.3
			Medicare Specialist Surgical Index		
Mean	92.9	95.0	92.2	93.2	96.2
Range	76-120	63-120	53-141	59-149	74-152
S. D.	8.0	10.6	11.4	12.8	14.2
			Medicare GP Cumulative Index		
Mean	89.5	95.8	92.4	92.2	95.6
Range	63-144	60-140	63-147	62-208	62-188
S.D.	20.8	19.3	14.7	14.9	16.9

TABLE A-5. MEAN, RANGE, AND STANDARD DEVIATION OF THIRD PARTY PREVAILING INDICES, BY COUNTY RATIO OF PHYSICIANS* TO 100,000 POPULATION

Physicians per 100,000 pop.*	0-24	25-74	75-124	125-174	175-224	225-299	300+
Number of counties	354	1,727	653	197	71	35	35
			Medicare Specialist Cumulative Index				
Mean	80.2	79.5	82.8	89.0	95.8	95.0	97.1
Range	61-107	56-126	56-147	56-130	67-153	71-147	77-191
S. D.	11.4	10.1	10.6	13.8	19.2	17.5	22.3
			HIAA Surgical Index				
Mean	90.4	91.5	93.6	99.2	105.1	101.6	105.1
Range	74-114	74-139	74-140	76-154	80-156	83-156	81-166
S. D.	6.9	8.2	10.4	15.1	19.2	19.2	18.8
			Medicare Specialist Medical Index				
Mean	78.3	76.8	81.3	88.5	94.7	97.2	98.7
Range	50-116	50-128	50-165	51-139	61-156	63-166	72-197
S. D.	16.2	14.3	14.1	16.6	22.2	21.6	24.3
			Medicare Specialist Surgical Index				
Mean	80.6	80.6	83.4	89.0	96.2	92.1	94.7
Range	55-101	55-128	55-125	55-129	71-151	73-132	76-187
S. D.	8.5	9.3	10.8	14.4	19.7	15.4	22.5
			Medicare GP County Cumulative Index				
Mean	80.6	79.9	83.7	89.4	96.1	94.6	97.0
Range	53-118	52-135	53-175	53-150	69-151	67-175	70-165
S. D.	14.9	13.3	13.4	16.3	18.8	21.9	20.5

* Includes interns and residents.

TABLE A-6. MEAN, RANGE, AND STANDARD DEVIATION OF THIRD PARTY PREVAILING INDICES BY SIZE OF SMSA POPULATION

SMSA population	Non-SMSA	10,000-249,999	250,000-999,999	1,000,000+
Number of counties	2,468	166	267	171
Medicare Specialist Cumulative Index				
Mean	79.7	84.8	87.4	95.9
Range	56-147	61-126	60-130	60-191
S. D.	10.1	11.3	12.3	18.9
HIAA Surgical Index				
Mean	91.6	93.1	96.5	107.1
Range	74-140	78-138	80-150	77-166
S. D.	8.8	10.0	10.9	17.6
Medicare Specialist Medical Index				
Mean	76.9	84.5	87.7	96.9
Range	50-165	51-129	50-139	51-197
S. D.	14.0	14.7	16.5	21.8
Medicare Specialist Surgical Index				
Mean	80.9	83.8	86.6	95.2
Range	55-128	55-127	55-123	55-187
S. D.	9.8	10.4	11.2	18.3
Medicare GP Cumulative Index				
Mean	80.2	85.3	89.4	95.9
Range	53-175	53-133	52-150	63-175
S. D.	13.1	15.5	16.5	17.1

TABLE A-7. MEAN, RANGE, AND STANDARD DEVIATION OF PREVAILING THIRD PARTY FEE INDICES BY REGION

Region	South	East	West	Midwest	Rockies
Number of counties	1,358	244	153	738	579
Medicare Specialist Cumulative County Index					
Mean	81.3	90.9	100.8	79.1	78.3
Range	63-147	71-191	85-126	60-122	56-116
S. D.	12.4	16.6	10.2	7.7	7.1
HIAA Surgical Index					
Mean	92.3	98.5	113.1	91.2	89.3
Range	74-140	76-166	88-150	77-123	77-113
S. D.	8.6	15.0	16.1	6.6	7.2
Medicare Specialist Medical Index					
Mean	79.5	91.2	95.8	76.8	74.9
Range	50-166	70-197	78-130	50-128	54-125
S. D.	17.1	19.7	11.6	12.2	10.0
Medicare Specialist Surgical Index					
Mean	82.1	90.4	109.1	80.6	77.8
Range	69-125	74-187	84-137	55-113	67-100
S. D.	8.5	15.2	13.5	11.1	6.3
Medicare GP Cumulative County Index					
Mean	84.8	89.6	100.8	75.6	78.7
Range	52-175	71-165	79-138	62-135	66-103
S. D.	17.2	14.1	13.1	8.8	6.1

TABLE A-8. MEAN, RANGE, AND STANDARD DEVIATION OF THIRD PARTY PREVAILING INDICES BY AVERAGE COUNTY PER CAPITA INCOME

Per capita income	Less than $1,500	$1,500-1,999	$2,000-2,499	$2,500-2,999	$3,000+
Number of counties	132	701	1,113	777	329
			Medicare Specialist Cumulative Index		
Mean	76.2	80.6	79.3	82.6	91.7
Range	56-100	56-107	56-113	56-153	58-191
S. D.	12.0	11.1	9.3	11.0	16.7
			HIAA Surgical Index		
Mean	91.2	90.9	91.3	93.5	102.5
Range	76-114	74-128	74-139	74-155	77-166
S. D.	6.2	7.2	7.7	10.9	17.2
			Medicare Specialist Medical Index		
Mean	72.8	78.6	76.4	80.7	91.5
Range	51-102	50-116	50-125	50-165	50-197
S. D.	17.2	15.7	13.0	14.6	19.7
			Medicare Specialist Surgical Index		
Mean	78.5	80.7	80.3	83.5	92.3
Range	67-101	55-101	55-124	55-151	67-187
S. D.	6.6	8.6	9.4	11.4	16.4
			Medicare GP Cumulative Index		
Mean	75.6	81.3	80.5	82.6	91.6
Range	53-113	52-118	53-129	62-175	63-175
S. D.	17.1	16.0	11.8	13.0	17.4

Chapter 11

FOREIGN MEDICAL GRADUATES IN GRADUATE MEDICAL EDUCATION

Charge D of the 1973 Social Security Amendments requests information about "the extent to which such funds (Medicare and Medicaid) support or encourage teaching programs which tend to disproportionately attract foreign medical graduates...."

To answer the charge, the study group examined the factors which have led to the presence of more than 70,000 foreign medical graduates (FMGs) in the United States health care industry. In this study, an FMG is defined as a graduate of a medical school located outside the United States, Puerto Rico, or Canada. Included as a subgroup of FMGs are United States foreign medical graduates (USFMGs), American citizens who receive their undergraduate medical training abroad. Unless otherwise noted, USFMGs are defined as FMGs in this study.

To analyze institutions and training programs, the study group examined the distribution of FMG house staff by type of hospital, specialty, and geography; the patient care, teaching, and education activities of FMGs in graduate medical education programs; and the extent to which Medicare and Medicaid support institutions with FMGs.

Selection of specific training positions by medical students and criteria used by program directors to select trainees have also been explored. These data may explain whether FMGs occupy residual training positions and why they may not have as much flexibility as USMGs in choosing hospitals and specialties.

ENTERING THE UNITED STATES: IMMIGRATION AND EDUCATIONAL EXCHANGE

In 1974, the Immigration and Naturalization Service and the Department of State reported that immigrant visas were issued to 4,537 FMGs; exchange visitor visas to 5,449 FMGs under the provisions of the United States Information and Educational Exchange Act of 1948 as amended; and 872 visas to other non-immigrant FMGs. 1/ Some of those receiving immigrant visas had already been living in the United States under exchange visitor visas. Such physicians are attracted to the United States by the quality of training programs at teaching hospitals and the professional opportunities which are available. Although both immigration and the exchange visitor program are routes to graduate medical training in the United States, the original purpose of each visa was different. Immigrant visas are usually sought by individuals seeking permanent residence; the exchange visitor program was created to facilitate access to specific education or training programs for individuals who would then return to their native countries. In fact, however, both categories of FMG arrivals tend to remain in the United States after completion of their graduate medical education.

Immigration policies and the structure and size of the graduate medical education programs make entry into the American medical system relatively easy for FMGs. As a result of separate legislative and administrative decisions made by Congress, the Department of State, the Department of Labor, and the Immigration and Naturalization Service, no single agency is responsible for the immigration and employment of FMGs; this lack of coordination among policy-making bodies has contributed to the unexpected and rapid increase of FMGs.

Those foreign-trained physicians arriving as permanent residents do so under provisions of the immigration laws. Before 1965, immigration to the United States was based on a national origins quota system which favored certain countries, particularly those of Europe. Physicians from other countries who did not qualify under their nation's quota were able to seek entry into the United States through the education exchange program. However, after the national origins quota system was abolished, immigration numbers were distributed on a first-come basis with defined preference categories. An increased number of immigration slots was made available to immigrants from other than the Western Hemisphere. Among the categories receiving special preference were persons of exceptional ability in the sciences and skilled workers in short supply in the United States. 2/ A 1965 classification decision by the Department of Labor that physicians were in short supply facilitated increased immigration of physicians.

The number of immigrant visas granted to FMGs rose from 2,012 in 1965 to a high of 7,143 in 1972; the greatest increase was in physicians from Asian countries (from 260 to 4,996), which reflected the impact of the change in immigration laws. 3/

The exchange visitor program was begun after World War II and received its major impetus from enactment in 1948 of the Smith-Mundt Act which authorized a special exchange visitor visa (J-visa) which allowed students to enter this country as non-immigrants and remain until completion of their studies. After the Department of State agreed to allow hospitals to sponsor exchange visitor programs, many students came to the United States for graduate medical education. The increasing and flexible number of internships and residencies provided an opportunity for FMGs to enter this country as education exchange visitors. By 1961, approximately half of the designated exchange visitor programs were sponsored by hospitals, 4/ and from 1961 to 1974, more than 60,000 FMGs became education exchange visitors.

Some administrative efforts were made to encourage exchange visitors to return to their homeland after completion of their education, but neither the requirement that students leave the United States for two years after completion of their training nor the five-year limitation for FMGs training in the United States was enforced strictly. In 1970, Public Law 91-225 eliminated the requirement for a two-year absence before re-entry to the United States. By that year, one of every six immigration visas granted to physicians was to an exchange visitor currently in the United States. 5/

The fact that immigration visas are often granted to individuals already in the United States under the exchange visitor program has meant that previously published statistics on the number of FMGs in any given year have been overstated by the number of such changes in visa status. Recently published data indicate that of the 7,119 immigrant visas granted to FMGs in 1973, 4,140 or 58 percent were adjustments in status, leaving only 2,979 immigrants as new entries. Combined with 5,144 non-immigrant FMGs, this makes a total of 8,123 new entries for 1973 (Table 1). In 1974, preliminary data showed that at least 20 percent of the 4,537 immigrant visas were adjustments in status. Although it had been thought that the number of Asian physicians entering the United States since 1965 had increased substantially, the elimination of double counting showed that the increase since 1968 has been more gradual than originally thought. 6/

Even with the liberalized immigration laws of the last decade, there are still countries with a protracted wait for a permanent immigration number.

TABLE 1. ENTRY OF FOREIGN MEDICAL GRADUATES INTO THE UNITED STATES (1965-1973)

Fiscal Year	Immigrants			Total exchange visitors	Total new FMG arrivals	Total U.S. medical graduates
	Total	Adjustments of status	New arrivals			
1965	2,012	112	1,900	4,114	6,014	7,409
1966	2,549	474	2,075	4,553	6,628	7,574
1967	3,325	841	2,484	5,631	8,115	7,743
1968	3,060	652	2,408	5,997	8,405	7,973
1969	2,756	576	2,180	4,759	6,939	8,059
1970	3,155	890	2,265	5,365	7,630	8,367
1971	5,748	2,902	2,846	5,033	7,879	8,974
1972	7,143	4,389	2,754	4,270	7,024	9,551
1973	7,119	4,140	2,979	5,144	8,123	10,391

Source: Adapted from Rosemary Stevens et. al., "Physician Migration Re-examined," Science 190 (October 31, 1975): 440.

Physicians from those countries have continued to enter the United States as exchange visitors, applying for immigrant status after their arrival. This accounts in part for the fact that in the past several years the number of immigrant visas issued as adjustments of status has exceeded the number of new entries.

These new data on the number of FMGs mean that the number of newly arriving FMGs has been consistently overstated, especially in recent years as the number of immigrant visas granted as adjustments in status has increased.

ENTERING THE MEDICAL CARE SYSTEM: GRADUATE MEDICAL EDUCATION AND LICENSURE

Figure 1 shows that between 1963 and 1973, the number of approved graduate positions offered by hospitals or medical schools increased by 34 percent from 49,586 in 1963 to 66,302 in 1973. During this period, the number of FMGs in house staff positions increased by 91 percent from 9,168 to 18,348* in 1973 or 30.6 percent filled positions in that year. 7/

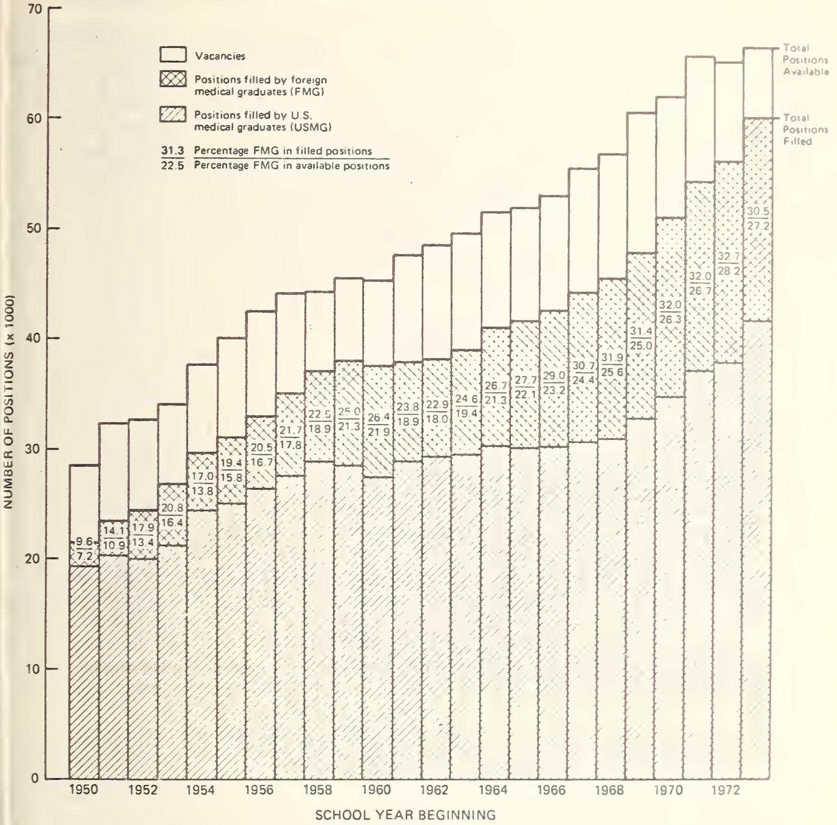
The Liaison Committee on Graduate Medical Education (LCGME) approves trainin programs on the basis of quality and limits trainees in individual programs to a number based on the institution's educational resources and patient population. It does not, however, control the total number of positions offered on a nationwide basis. To some extent, the increase in the number of house staff positions has helped to satisfy the hospitals' need for physician personnel, and has thereby provided an opportunity for FMGs to enter these positions. Any sudden restrictions on FMGs would have important implications for hospital staff patterns.

The trend apparent in the 1960s and early 1970s toward increasing numbers of FMGs in residency positions now appears to be changing. Since there are more USMGs, there are more USMGs seeking training positions; for the first time in recent years, the total number of FMGs in training decreased - from 19,221* in 1973 to 18,422 in 1974. 8/ Although the number of training positions continued to rise in these years, the rate of growth has been much less than that of USMGs. Figure 2 shows that without any further growt in the number of training positions, by the mid-1980s almost all graduate medical education slots could be filled by USMGs. 9/ Factors which might lead to an expansion of new slots - and continued opportunities for FMGs - include the increase of family practice residencies, requirements of new medical schools for teaching positions and the continued growth of the subspecialties. However, there are also factors which might lead to a

---

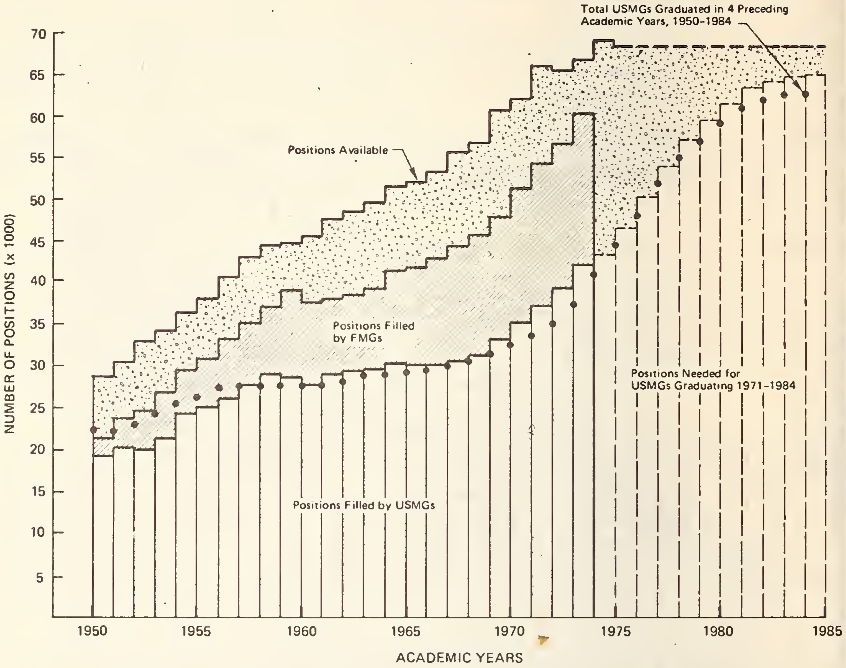
*The AMA Directory of Approved Residencies, 1974-75 reported 18,348 FMGs in internships and residencies as of September 1, 1973; "Graduate Medical Education," The Journal of the American Medical Association 234 No. 13 (December 29, 1975): 1355 reported 19,221 FMGs in internships and residencie as of December 31, 1973.

FIGURE I
APPROVED HOUSE STAFF POSITIONS, FILLED BY USMGS AND FMGS, AND UNFILLED, 1950-1973



Source: Adapted from Directory of Approved Internships and Residencies (Chicago: American Medical Association, 1974), p. 21.

FIGURE 2
RELATION OF NUMBER OF USMGS TO APPROVED INTERNSHIPS AND RESIDENCIES



Source: John Gordon Freyman, M.D., "A Clinical View of the Foreign Medical Graduate Problem," (unpublished paper prepared for the Department of Health, Education and Welfare) decrease in training positions, including implementation of a moratorium on new graduate education positions and fiscal pressures on hospitals to contain costs. To the extent that the number of graduate medical education positions decreases, the trend shown in Figure 2 accelerates.

Since there may be basic differences in training between USMGs and FMGs, FMGs must receive certification from the Educational Commission for Foreign Medical Graduates (ECFMG) to be eligible for an approved graduate medical education position in the United States. Since 1958, certification credentials include graduation from a medical school listed in World Directory of Medical Schools published by the World Health Organization, fulfillment of all requirements for full and unrestricted practice in the country where the medical school is located,* and passage of the ECFMG examinations. The ECFMG administers both an English language and a standardized test of medical knowledge to determine whether FMGs entering the American graduate education training programs have sufficient knowledge to benefit from participation in such programs. The ECFMG examination is constructed from a large pool of test questions maintained by the National Board of Medical Examiners. All of these questions have been used in previous National Board examinations for students or graduates of United States and Canadian medical schools. By appropriate selection and scoring procedures, the ECFMG examination is prepared so that if graduating seniors of United States medical schools were to take the examination, 98 percent would pass. According to the ECFMG, each year between 1970 and 1974 more than 30,000 FMGs took the ECFMG examination, about half for the first time. Evaluation of the test results show that each year approximately one-third to two-fifths of the examinees pass any given examination with many clustering around the passing grade of 75. Applicants may repeat the examination, and two-thirds of the examinees eventually pass the test, 10/ most of them within three attempts. Although ECFMG certification is required for entry into an approved graduate medical education program, it is not required for entry into this country, nor is it necessarily a requirement for an FMG to be granted a less-than-full license. Passage of the ECFMG examination alone, without completion of the entire certification process, may qualify an FMG for a limited license in some states.

In most states, the basic requirements for full licensure for FMGs include certification by the ECFMG, one or two years of graduate training in an AMA-approved program, and passage of a state qualifying examination. The examination administered by the Federation of State Medical Boards, the Federation Licensing Examination (FLEX), has been adopted by all states except Florida as a standard licensing examination for all medical graduates to replace individual state examinations. Each state may set its own passing grade, and although there are some variations for certain parts of the examination, some 80 percent of the states rely on a FLEX weighted average of 75 for qualification.*

---

*Exceptions have been made for USFMGs who have not met clinical requirements for foreign licensure.

Almost every state has special provisions exempting physicians in graduate medical education positions from having regular licenses. Additionally, all except four states have passed legislation permitting physicians who cannot meet requirements for regular licensure to be issued limited licenses or exemptions for certain conditions of practice. In general, these exceptions are for one or more of the following: service in a public institution, service in a shortage area or community emergency, a prescribed situation of practice, or a specific period of time. 11/

Physicians in institutions who hold limited licenses presumably work under the supervision of a fully licensed physician within the hospital. Although limited licensure laws were intended to supply physicians for short-term periods, some states depend heavily on FMGs, many with limited licenses, to staff their hospitals. The extent to which FMGs with limited or no license participate in the nation's health care system is unknown, but estimates of a "medical underground" go as high as 10,000. Studies have suggested that half of these individuals may be employed in the health field with varying degrees of direct patient care responsibilities. 12/

The number of FMGs who become permanent members of the physician manpower pool in the United States is substantial. In 1974, 6,485 (39 percent) of the 16,523 physicians who received their first license were FMGs. 13/ In 1973, 7,419 FMGs received initial licenses (43 percent), and in 1972, there were 6,552 (46 percent). In Delaware, the District of Columbia, Maine, and North Dakota, more than 80 percent of physicians who received initial licenses in 1974 were FMGs. States with a high percentage of FMGs who received initial licenses do not necessarily have either a high proportion of FMG house staff or a high proportion of FMGs in the total physician population. The states with the greatest percentage of FMGs in their total physician population are New York, New Jersey, Illinois, Rhode Island, and Delaware.

DISTRIBUTION OF FMGs AMONG SPECIALTIES

Although FMGs comprise 30 percent of house officers, they are not evenly distributed among specialty training programs. Specialties which were heavily staffed by FMGs included physical medicine and rehabilitation

---

*The FLEX weighted average is an overall 75 percent score, giving one-sixth weight to the first day (basic sciences), one-third to the second day (clinical subjects,), and one-half to the third day (clinical competence).

(65 percent), pathology (57 percent), and anesthesiology (54 percent). General practice, a non-specialty residency training program which reported only 277 positions, had a programmatic mean of 87 percent FMGs. Specialties with the smallest proportion of FMGs in training were dermatology (7 percent), ophthalmology (9 percent), family practice (12 percent), orthopedic surgery (14 percent), and otolaryngology (17 percent).

Those specialty residency training programs which appear to be the most popular in that 95 percent or more of their positions are filled, do not appear to be as readily available to FMGs, with the exception of pediatrics and internal medicine which have numerous total positions (Table 2). However, those specialty residency programs with the smallest percentage of filled positions do not necessarily have a greater-than-average percentage of FMGs in the filled positions.

TABLE 2. PERCENTAGE OF FMGs IN RESIDENCY PROGRAMS WHICH WERE 95 PERCENT OR MORE FILLED (1973)

Specialty	Percentage of offered residencies filled	Percentage filled by FMGs
Dermatology	96	9
Internal medicine	96	30
Neurosurgery	95	20
Ophthalmology	96	8
Orthopedic surgery	96	10
Otolaryngology	96	16
Pediatrics	96	33
Urology	96	20
All Specialties	91	30

Source: Adapted from Directory of Approved Internships and Residencies, 1974-75 (Chicago: American Medical Association, 1975), p. 9.

In addition to internships and residencies, there are a number of fellowships and other graduate medical education training positions which vary from year to year and are not approved by the LCGME. The AMA reported 9,324 such positions as of September 1, 1973, 38 percent of which were occupied by FMGs. 14/ The NSQ reported 5,507 such positions, 37 percent of which were occupied by FMGs. About three-fifths of these positions were in internal medicine and its subspecialties.

DISTRIBUTION OF FMGs AMONG INSTITUTIONS

The AMA reported that as of September 1, 1973, 16 percent of the FMGs in residency slots were in non-affiliated hospitals which had nine percent of the total residency positions. Although the percentage of FMGs in all residency slots was 31 percent, the percentage of FMG residents in non-affiliated hospitals was 59 percent, compared to 28 percent in affiliated hospitals.

The study group classified hospitals surveyed by ownership and education association (Chapter 1, Part II). Proportionally, the highest concentration of FMGs was in the local independent institutions (where slightly more than half of all house officers were FMGs), followed by the private independent and private undergraduate associated institutions (Table 3). The smallest concentration of FMGs was found in federal undergraduate associated institutions and in other federal and state institutions, with the exception of the state independent institutions which had 35 percent FMGs; three-fourths of the state independent institutions were psychiatric hospitals or institutions for the mentally retarded.

These data show that the greater the degree of affiliation with a medical school, the lower the percentage of FMGs in the institution. Principal and graduate associated institutions had 24 percent FMGs compared to 35 percent for undergraduate associated institutions and 44 percent for independent institutions.

Eighty-one percent of the FMGs served in institutions with an above average concentration of FMGs, compared to 26 percent of the USMGs who served in such institutions.

USFMGs comprised three percent of the house staff of the hospitals surveyed by the Institute of Medicine. USFMGs tended to be in institutions with high FMG concentrations but were slightly more likely than other FMGs to serve in institutions with lower concentrations of FMGs.

GEOGRAPHIC DISTRIBUTION OF FMGs

As of December 1974, aggregate figures from the AMA showed that 67 percent of the 18,237 FMG interns and residents reported by state were concentrated

TABLE 3. DISTRIBUTION OF HOUSE STAFF BY HOSPITAL CLASSIFICATION (1975)

Hospital classification	Total house officers	USMGs	FMGs	FMG percent of total
Total	44,476	31,178	13,298	29.9
Federal				
Principal/grad. assoc.	4,682	3,569	1,113	23.8
Undergraduate assoc.	510	490	20	3.9
Independent	472	412	60	12.7
State				
Principal/grad. assoc.	5,275	4,341	934	17.7
Undergraduate assoc.	1,098	925	173	15.8
Independent	1,261	824	437	34.7
Local				
Principal/grad. assoc.	4,994	3,757	1,237	24.8
Undergraduate assoc.	421	296	125	29.7
Independent	917	450	467	50.9
Private				
Principal/grad. assoc.	11,585	8,599	2,986	25.8
Undergraduate assoc.	6,029	3,523	2,506	41.6
Independent	6,564	3,450	3,114	47.4
Unknown	668	542	126	18.9

Source: Institute of Medicine National Survey Questionnaire.

in six industrial states: New York, Illinois, Ohio, Pennsylvania, Michigan, and New Jersey. 16/ These same six states had 30 percent of the USMG house staff and 41 percent of the total house staff population.

Data from the Institute of Medicine survey show that the highest concentration of FMG house staff was in the Mid-Atlantic region (46 percent of the total house staff), which includes New York, New Jersey, and Pennsylvania; second was the Midwest (36 percent) which includes Ohio, Illinois, and Michigan.

Three of the states in these regions - Illinois, New Jersey, and New York -- had total FMG physician populations of more than 30 percent; two others -- Delaware and Rhode Island -- also had FMG physician populations over 30 percent. 17/

House officers responding to the activity analysis were asked to rank certain factors which related to their selection of particular institutions and training programs. One of these factors was geography, which was ranked as the most important selection factor by only six percent of the FMGs compared to 12 percent of the USMGs. The study group believes that although knowledge about licensing factors may influence selection of a practice site, FMGs often lack such detailed knowledge of the medical care system when they make training program decisions.

DISTRIBUTION OF FMGs BY NATIONAL ORIGIN

It is difficult to determine the "national origin" of an FMG who may have been born in one country, gone to medical school in another, and resided in yet another country immediately before admission to the United States. The study group classified FMGs by country of medical education which was listed for 13,668 non-USFMGs* (Table 4). The largest proportion of the trainees came from Asia (68 percent); within that group, most came from India.

TABLE 4. FMG TRAINEES IN THE UNITED STATES BY COUNTRY OF MEDICAL EDUCATION

Country	AMA data (12/31/74)		NSQ reported a/	
	Number	Percent	Number	Percent
Total	18,422	100	13,668	100
Africa	518	3	415	3
Americas	2,899	16	2,122	16
Asia	12,185	66	9,271	68
Europe	2,684	15	1,743	13
Oceania	136	1	117	1

Sources: "Graduate Medical Education," *Journal of the American Medical Association*, 234 No. 13 (December 29, 1975): 1355; Institute of Medicine National Survey Questionnaire.

a/Country of medical education was not reported for all FMGs.

Recent data show that of the 8,123 new FMG entries for 1973, 46.2 percent were from Asia, 26.3 percent from the Americas, 5.8 percent from Africa, 19.7 percent from Europe and two percent from other areas. 18/

---

*Data from NSQ on national origin included fellows and other trainees who comprised about 13 percent of this population.

The data showed some differences among FMGs according to the country of their medical school education, including distribution among specialties. Almost one-third of the trainees from Europe and Oceania (New Zealand and Australia) were in internal medicine, compared to one-fourth of the total FMG population. Asian FMGs tended to be in the hospital-based specialties, and Africans in the surgical specialties, especially obstetrics-gynecology and general surgery.

Asians tended to serve in specialties identified as having high overall concentrations of FMGs. Further, although Asians were 68 percent of the total FMG population, they were 81 percent of the trainees in programs which were all FMG and they constituted 85 percent of the population in institutions which were all FMG. Although Europeans accounted for 13 percent of the overall FMG population, they comprised 23 percent of the FMG trainees in programs with low concentrations of FMGs and 20 percent of the FMG trainees in institutions with low concentration of FMGs.

House officer activity data showed that 88 percent of the Europeans and 86 percent of the Latin Americans were in the specialty of their first choice, compared to 80 percent of the Asians and 75 percent of the Africans. Eighty-six percent of the Europeans were in the hospital of their first choice compared to 76 percent for Asians and Latin Americans and 75 percent for Africans.

European FMGs were most likely to be in principal and graduate affiliated institutions, followed by Africans and Latin Americans. Although only one-third of the Asians served in independent hospitals, they were three-fourths of the FMG house staff and one-third of the total house staff in the United States in such institutions.

FOREIGN MEDICAL GRADUATES IN HOUSE OFFICER POSITIONS*

In the absence of clear legislative history, determination of "disproportionality" required the application of normative standards by the steering committee. A judgment was made to examine programs and institutions on the basis of the concentrations of FMGs compared to national norms as reported in a national survey conducted by the Institute of Medicine. The program level was viewed as key to the examination because an institution may have varying concentrations of FMGs within its constituent training programs, and because each training program within an institution is a separate entity with its own structure, format and program content, and with varying levels of interaction with other specialty programs in the institution.

---

*In this chapter, house officer refers to interns and residents. Also, only allopathic institutions were considered since there are no foreign doctors of osteopathy.

A specialty was considered to have a greater-than-average concentration of FMGs if the percentage of FMGs in that specialty was greater than the overall percentage of FMG house officers which was 30 percent.

A particular training program* was considered to have an above-average concentration of FMGs if the percentage of FMGs in the program exceeded the national concentration of FMGs in that specialty. Training programs were classified as follows:

- those with almost no FMGs,**
- those with an FMG concentration at or below the national average for the specialty,
- those with an FMG concentration above the national average for the specialty, and
- those with almost all FMGs.**

An institution was considered to have a greater-than-average concentration of FMGs if its percentage of FMG house staff exceeded 30 percent or if more than 38 percent of its training programs had an FMG concentration which exceeded the national average for the particular specialty. Institutions were classified in categories as above:

- those with almost no FMGs,***
- those with an FMG concentration at or below the average institutional FMG concentration,
- those with an FMG concentration above the national institutional concentration, and
- those with almost all FMGs.***

To consider the implications of certain concentrations of FMG house staff, the steering committee examined the following areas:

---

*A training program in several hospitals was counted separately for each hospital in which it is located.

**Programs with less than 0.5 percent FMGs were considered to have no FMGs; programs with more than 99.5 percent FMGs were considered to have all FMGs.

***Institutions with less than 0.5 percent FMGs were considered to have no FMGs; institutions with with more than 99.5 percent FMGs were considered to have all FMGs.

- characteristics of specialties with different concentrations of FMGs,
- characteristics of programs with different concentrations of FMGs,
- characteristics of institutions with different concentrations of FMGs, and
- selection criteria of both program directors and physicians seeking training slots.

Specialties

NSQ data showed that FMGs in training in the following specialties exceeded the national average of 30 percent:*

physical medicine and rehabilitation	65 percent
pathology	57 percent
anesthesiology	54 percent
colon and rectal surgery	54 percent
nuclear medicine	49 percent
therapeutic radiology	44 percent
pediatrics	41 percent
psychiatry	39 percent
obstetrics and gynecology	38 percent
general surgery	37 percent
radiology	34 percent
preventive medicine	33 percent
neurology	31 percent

In addition to these specialties, several subspecialties exceeded the national average of 30 percent: oncology (50 percent), nephrology (43 percent), cardiology (41 percent), rheumatology (37 percent), pediatric surgery (36 percent), and pediatric neonatology (33 percent).

The three major specialties which were more than 50 percent FMG - physical medicine, pathology, and anesthesiology - had 2,337 FMG house officers, or 18 percent of the total FMG house staff. Only six percent of the USMGs served in these specialties.

Specialties with percentages of FMGs in training well below the national average of 30 percent were:

---

*General practice, a non-specialty residency training program with 227 reported positions, and a programmatic mean of 87 percent. Forty-five percent of the trainees in rotating internships were FMGs.

dermatology	7 percent
ophthalmology	9 percent
family practice	12 percent
orthopedic surgery	14 percent
otolaryngology	17 percent

Training Programs

Of the 4,795 programs reported in the Institute of Medicine's survey, 1,841 or 38 percent were identified as having a concentration of FMGs which exceeded the national average for the particular specialty (Table 5). Those programs with an above average concentration of FMGs had 34 percent of the total house staff--86 percent of the FMG house staff and 12 percent of the USMGs.

The specialities with the greatest percentage of programs above the national average were physical medicine, pathology, and anesthesiology--all specialties previously identified as having high overall percentages of FMG house officers.

Seventeen percent of all programs were almost all FMG. Such programs had 11 percent of the total house staff, or 35 percent of the FMG house staff. Fifteen percent of these programs were in institutions with below average concentrations of FMGs. Such programs were most likely to be found in private undergraduate associated, private independent, and local independent institutions.

The 2,153 programs which had almost no FMGs (45 percent of all programs) had 33 percent of the total house staff, or 48 percent of the USMGs. Eighteen percent of these programs were in institutions which had above-average concentrations of FMGs. Such programs tended to be in federal hospitals and local principal and graduate associated institutions.

All specialties had some programs which had very high and very low concentrations of FMGs, with specialties with a high overall concentration having the greatest proportion of programs with almost all FMGs and those with low overall concentrations of FMGs having the greatest proportion of programs with almost no FMGs. Thoracic surgery was the only specialty which had a percentage of programs in both the very high and very low FMG categories which exceeded the overall average for these categories.

Programs with higher concentrations of FMGs were more likely to be in institutions with fewer teaching programs. Although only 16 percent of the programs with no FMGs were in institutions with six or fewer teaching programs, 39 percent of the programs with all FMGs were in these institutions. This pattern was true for most specialties with the exceptions of general practice and physical medicine (a large proportion of the programs are all

TABLE 5. NUMBER AND PERCENT DISTRIBUTION OF TRAINING PROGRAMS BY FMG CONCENTRATION AND BY SPECIALTY

Specialty	Average FMG percentage in training programs	Total programs a/	No FMGs b/	Below average FMGs	Above average FMGs	All FMGs b/
Total	33	4,795	44.9	16.7	21.1	17.2
Medical	31	1,449	44.4	17.9	21.1	16.6
Family practice	12	139	66.9	9.4	20.9	2.9
General practice	87	28	10.7	3.6		85.7
Internal medicine	27 c/	799	45.7	20.3	22.2	11.9
Pediatrics	38 c/	282	35.1	21.6	24.1	19.1
Other medicine	44 c/	201	41.8	10.9	15.9	31.3
Surgical	36	2,053	55.0	11.3	22.1	11.7
Neurosurgery	19	129	64.3	1.6	24.8	9.3
Obstetrics & gyn.	38	292	35.3	24.3	22.9	17.5
Ophthalmology	9	222	76.6	3.2	17.6	2.7
Orthopedic surgery	14	292	65.1	8.6	20.9	5.5
Otolaryngology	17	154	67.5	5.2	18.8	8.4
Thoracic surgery	30	114	58.8	2.6	19.3	19.3
Urology	22	246	61.8	4.9	22.0	11.4
Other surgery	23 c/	152	62.5	4.6	19.7	13.2
General surgery	37 c/	457	36.8	21.2	26.3	15.8
Psychiatry	37	296	30.4	29.7	24.7	15.2
Hospital-based	49	992	28.9	22.4	18.2	30.4
Physical medicine	65	75	17.3	18.7	18.7	45.3
Radiology	34 c/	363	42.4	19.3	19.3	19.0
Pathology	57	374	22.2	24.1	13.9	39.8
Anesthesiology	54	180	20.6	26.7	25.0	27.8

Source: Institute of Medicine National Survey Questionnaire.

a/In addition, there were 517 programs with an unknown percentage of FMGs and 127 oral surgery programs not included in the analysis of FMG concentration.

b/Programs with less than 0.5 percent FMGs were considered to have no FMGs; programs with more than 99.5 percent FMGs were considered to have all FMGs.

c/This specialty category comprised several individually reported specialties and subspecialties. Each particular specialty was compared to its own overall average percentage. Listed is an aggregate percentage.

FMG) and neurosurgery, ophthalmology, thoracic surgery, and other surgery, which had no programs with very high FMG concentrations in institutions with six or fewer training programs. Almost five percent of the programs with all FMGs were in institutions with no other training programs, compared to 2.5 percent of programs with no FMGs.

House staff in training programs which were all FMG were more likely to be in hospital-based specialties than other house officers. House staff in programs with no FMGs had a higher concentration in surgery and medical specialties (Table 6).

TABLE 6. PERCENTAGE DISTRIBUTION OF HOUSE STAFF AMONG TRAINING PROGRAMS BY FMG CONCENTRATION

Type of specialty	Total	No FMGs a/	Below average FMGs	Above average FMGs	All FMGs a/
Total	100.0	100.0	100.0	100.0	100.0
Medical	44.8	46.9	46.6	40.6	42.1
Surgical	33.3	39.1	26.8	37.2	25.9
Psychiatry	7.4	5.1	10.0	8.0	6.0
Hospital-based	14.5	8.9	16.7	14.2	25.9

Source: Institute of Medicine National Survey Questionnaire.
a/Programs with less than 0.5 percent FMGs were considered to have no FMGs; programs with more than 99.5 percent FMGs were considered to have all FMGS.

The overall mean program size was 9.2. The mean size of programs with no FMGs was 6.9 compared to 5.7 for programs with all FMGs. Programs with a below-average concentration of FMGs had a mean size of 17.9; those with an above-average concentration of FMGs had a mean size of 10.4.

The activity analysis conducted by the study group showed that there were few differences in professional activities of USMG and FMG house officers. Further, there were no great differences between house staff in programs with differing concentrations of FMGs (Table 7). House staff in programs with almost all FMGs spent slightly less time in patient care activities and more time in learning situations. Also, house staff in programs with high concentrations of FMGs spent more patient care time in the presence of an attending physician (31 percent) and less in patient care activities

TABLE 7. DISTRIBUTION OF HOUSE OFFICER TIME IN TRAINING PROGRAMS BY FOREIGN MEDICAL GRADUATE CONCENTRATION (1975) (percent)

Type of activity	All programs	No FMGs a/	Below average FMGs	Above average FMGs	All FMGs a/
Total Hours					
All house officers b/	262,688	78,074	70,962	81,904	41,628
U.S. medical graduates	207,195	75,980	63,155	28,589	7,277
Foreign medical graduates	54,959	1,894	7,750	53,315	34,351
Total Patient Care					
All house officers b/	64.0	63.1	61.6	68.1	65.3
U.S. medical graduates	63.0	63.2	61.6	63.6	57.0
Foreign medical graduates	67.8	56.8	60.8	70.3	66.9
Patient Care and Research					
All house officers b/	.3	.3	.2	.2	.2
U.S. medical graduates	.3	.3	.2	.1	.1
Foreign medical graduates	.2	.0	.2	.2	.2
Patient Care and Teaching					
All house officers b/	15.1	17.7	16.9	11.6	8.3
U.S. medical graduates	16.6	17.8	17.2	12.8	23.8
Foreign medical graduates	9.5	15.0	14.2	11.0	5.1
Learning					
All house officers b/	15.0	13.5	14.5	16.1	21.8
U.S. medical graduates	14.2	13.3	13.9	18.0	15.7
Foreign medical graduates	18.0	21.3	19.6	15.2	23.0
Teaching					
All house officers b/	2.0	1.9	2.3	1.6	2.1
U.S. medical graduates	2.1	1.9	2.4	2.1	1.4
Foreign medical graduates	1.8	1.0	1.7	1.4	2.2
Research					
All house officers b/	2.1	2.1	3.0	1.3	1.4
U.S. medical graduates	2.2	2.0	3.1	1.7	.8
Foreign medical graduates	1.8	4.6	2.4	1.2	1.6
Administration					
All house officers b/	1.4	1.4	1.5	1.0	1.0
U.S. medical graduates	1.5	1.4	1.6	1.6	1.1
Foreign medical graduates	.8	1.2	1.0	.7	.9

Source: Institute of Medicine House Officer Activity Analysis.

a/Programs with less than 0.5 percent foreign medical graduates were considered to have none; programs with more than 99.5 percent foreign medical graduates were considered to have all foreign medical graduates.

b/May include hours of house officers of unknown United States medical graduate/foreign medical graduate status.

TABLE 8. PERCENT DISTRIBUTION OF HOUSE OFFICER TIME, BY PATIENT CARE ACTIVITY AND USMG-FMG STATUS, IN ALL TRAINING PROGRAMS BY FMG CONCENTRATION

Type of Activity	All programs	No FMGs a/	Below average FMGs	Above average FMGs	All FMGs a/
Total patient care hours					
All house officers b/	208,684	63,344	55,818	25,858	11,108
USMGs	165,608	61,793	49,947	8,018	2,068
FMGs	42,631	1,354	5,833	17,840	9,040
With attending physician					
All house officers b/	25.4	24.7	22.8	31.0	32.2
USMGs	24.1	24.7	22.5	30.6	27.7
FMGs	30.0	25.5	25.2	31.2	33.3
With senior house officer					
All house officers b/	13.1	12.7	13.2	12.6	12.5
USMGs	12.9	12.8	13.3	11.8	10.7
FMGs	13.9	10.2	12.2	13.0	12.9
With review expected					
All house officers b/	43.9	44.4	45.0	42.3	41.2
USMGs	44.7	44.4	44.8	45.3	48.8
FMGs	41.0	45.3	47.2	41.0	39.5
With no review expected					
All house officers b/	12.8	13.3	13.7	9.2	10.9
USMGs	13.4	13.2	13.8	8.5	10.7
FMGs	10.7	15.7	13.1	9.5	11.0
Unspecified patient care					
All house officers b/	4.8	4.8	5.2	4.9	3.1
USMGs	4.8	4.9	5.6	3.9	2.1
FMGs	4.5	3.3	2.3	5.3	3.4
Total patient care as					
percent of profession	79.4	81.1	78.7	79.9	73.8
All house officers b/	79.9	81.3	79.0	66.5	80.9
USMGs	77.5	71.8	75.2	81.5	72.2
FMGs					

Source: Institute of Medicine House Officer Activity Analysis.

Note: See Chapter 3, Part II for further explanation of patient care classification.

a/Programs with less than 0.5 percent FMGs were considered to have no FMGs; programs with more than 99.5 percent FMGs were considered to have all FMGs.

b/May include hours of house officers of unknown USMG/FMG status.

without expectation of review (10 percent), than did house staff institutions with low FMG concentrations (24 percent and 14 percent respectively) (Table 8). The study group examined the professional activities of house staff in six specialties with varying overall concentrations of FMGs*; the same general pattern of house officer activities was found.

Institutions

National Survey Questionnaires were sent to 1,320 allopathic hospitals, with a response rate of 77 percent. Of the 759 responding teaching institutions which could be classified by percent of FMGs, 379 (or half) had an FMG concentration above the national average of 30 percent FMG house staff or 38 percent of the training programs with an FMG concentration above the national average for the particular specialty. Forty-three percent of all house staff served in such institutions--26 percent of UFMGs and 81 percent of FMGs.

Within the hospital categories, FMGs also appeared in institutions with above-average concentrations of FMGs differently. Although 81 percent of all FMGs were in such institutions, the percent varied from ten percent in federal undergraduate associated institutions to 93 percent and 92 percent in local and private undergraduate associated institutions, respectively.

The hospital categories with the greatest percentage of institutions with an FMG concentration above the national average were: state independent (69 percent), private independent (61 percent), local independent (60 percent), private undergraduate associated (60 percent), and state undergraduate associated (59 percent) (Table 9).

In ten percent of the institutions, the house staff was almost all FMG, and in 16.5 percent there were almost no FMGs. Of the 77 institutions with all FMGs, two-thirds were either state independent or private independent institutions. These 77 institutions had 1,376 house officers, three percent of the total house staff or ten percent of the FMG staff. The 125 institutions with no FMGs had 2,083 house officers, five percent of the total house staff or seven percent of the USMGs.

Overall, the greater the degree of affiliation with a medical school, the less likely an institution was to have an above average FMG concentration. Forty percent of the principal and graduate associated institutions had an FMG concentration which exceeded the national average; 56 percent of the undergraduate affiliated institutions and 60 percent of the independent institutions had such a concentration. This progression obtained for all ownership categories, except federal hospitals, although it should be noted that some cells had few institutions.

---

*Anesthesiology, pathology, ophthalmology, otolaryngology, pediatrics, and obstetrics-gynecology.

TABLE 9. DISTRIBUTION OF INSTITUTIONS BY FOREIGN MEDICAL GRADUATE CONCENTRATION IN THE INSTITUTION (1975) (percent)

Hospital classification	Number institutions	No FMGs b/	Below average FMGs	Above average FMGs	All FMGs b/
Total	759 a/	16.5	33.6	39.8	10.1
Federal					
Principal/grad. assoc.	80	5.0	57.5	33.8	3.8
Undergraduate assoc.	8	37.5	50.0	12.5	0.0
Independent	20	50.0	25.0	20.0	5.0
State					
Principal/grad. assoc.	43	9.3	60.5	27.9	2.3
Undergraduate assoc.	17	5.9	35.3	35.3	23.5
Independent	52	11.5	19.2	40.4	28.8
Local					
Principal/grad. assoc.	49	14.3	46.9	38.8	0.0
Undergraduate assoc.	6	0.0	50.0	33.3	16.7
Independent	20	15.0	25.0	45.0	15.0
Private					
Principal/grad. assoc.	177	23.2	32.8	42.4	1.7
Undergraduate assoc.	111	13.5	27.0	52.3	7.2
Independent	168	17.3	21.4	38.7	22.6
Unknown	8	25.0	37.5	37.5	0.0

Source: Institute of Medicine National Survey Questionnaire.

a/There were an additional 58 institutions which could not be classified by foreign medical graduate concentration.

b/Institutions with less than 0.5 percent FMGs were considered to have no FMGs; institutions with more than 99.5 percent FMGs were considered to have all FMGs.

The Mid-Atlantic region had the greatest proportion of the institutions with an FMG concentration above the national average (73 percent) followed by the Northeast and Midwest, which had 61 percent. In the Mid-Atlantic and Midwest regions, five percent of the house staff served in institutions which were almost all FMGs. This was 11 percent of the FMGs in the Mid-Atlantic region and 14 percent of the Midwest FMGs. More than half the institutions which were all FMGs were in the Mid-Atlantic region; there were no such hospitals in either the Southwest or West. The West was more likely to have institutions with no FMGs.

The institutions of different FMG concentrations did not have a similar distribution of training programs by specialty (Table 10). Institutions with no FMGs were more likely to have medical programs and less likely to have hospital-based programs. Institutions with all FMGs also had a greater percentage of programs in the medical specialties, but they had a lower proportion of surgical programs. There were no programs in the specialties of neurosurgery, ophthalmology, otolaryngology, and other surgery reported in hospitals which were all FMG.

TABLE 10. DISTRIBUTION OF TRAINING PROGRAMS BY INSTITUTIONAL FMG CONCENTRATION AND TYPE OF SPECIALTY

Type of specialty	Total	No FMGs a/	Below average FMGs	Above average FMGs	All FMGs a/
Total b/	100.0	100.0	100.0	100.0	100.0
Medical	30.2	38.0	28.2	30.7	41.3
Surgical	42.9	43.0	44.6	42.0	26.9
Psychiatry	6.2	5.7	6.3	5.5	13.1
Hospital-based	20.6	13.3	20.9	21.8	18.8

Source: Institute of Medicine National Survey Questionnaire.
a/Institutions with less than 0.5 percent FMGs were considered to have no FMGs; institutions with more than 99.5 percent FMGs were considered to have all FMGs.
b/Totals may not add to 100 percent due to rounding.

Although both Medicare and Medicaid, when considered as a percentage of patient care revenues, had slightly higher means in institutions with above-average concentrations of FMGs, the differences were not statistically significant. The average dollar amount per institution was lower in institutions with no FMGs and those with all FMGs because these institutions tended to be smaller. Two-thirds of these institutions were under 400 beds; less than half of the other institutions were that size.

When Medicare as a percent of patient care revenues was examined, the distribution for all institutions except those with below-average concentrations of FMGs were similar, and the mean for each of these categories was slightly above the overall mean of 25.34 percent (Table 11). Although it was difficult to discern trends among the hospital categories, since the number of institutions in many categories was so small, it appeared that on the whole, in more than half the state institutions (52 percent) Medicare was 20 percent or less of patient care revenues, compared to 27 percent of the local institutions and 18 percent of the private institutions. More than 34 percent of the private institutions were in the 31 to 50 percent category.

The distribution of institutions according to Medicaid as a percent of patient care revenue was somewhat different in that institutions with all FMGs had a slightly higher mean percent than the other institutions, with a greater proportion of these institutions falling in the 51 to 60 percent category (Table 12). Again, it was difficult to detect trends throughout all hospital categories, but it appears that Medicaid played a rather smaller role in the patient care revenues of private institutions. Sixty-three percent of private institutions reported that Medicaid was ten percent or less of total patient care revenues, compared to 37 percent of the state institutions and 29 percent of the local institutions.

SELECTION OF HOUSE OFFICERS

Although FMGs, like their American colleagues, seek the best training experience and opportunity available to them, many often lack the information on which to base a decision, and, in fact, may face different selection criteria on the part of program directors. Further, it appears that FMGs make their training program decisions on the basis of value judgments which are somewhat different from those of USMGs.

Directors of 415 programs listed criteria considered in the selection of house staff. Thirty-nine or nine percent indicated that FMGs were not accepted by their programs. Sixty-three percent of all program directors indicated that USMGs were preferred, compared to 43 percent of the directors of programs which were entirely FMG. Certification by the ECFMG is required for admission to an AMA-approved program, but only 60 percent of the program directors indicated that this was a selection criterion for non-USMGs. However, more than 80 percent of directors of programs with high FMG concentrations listed this as a selection criterion. Thirty percent of the respondents indicated that citizenship was a factor in selection. Although these three criteria were the only ones relating directly to the FMGs, other selection criteria were likely to favor USMGs. For example, 92 percent of the respondents used a personal interview, 90 percent relied on recommendations, and 40 percent used national boards or the FLEX examination, which is generally not taken by FMGs before graduate medical education.

TABLE 11. PERCENT DISTRIBUTION OF INSTITUTIONS BY PATIENT CARE REVENUES FROM MEDICARE AND FOREIGN MEDICAL GRADUATE CONCENTRATION IN INSTITUTIONS, 1975

Concentration	Number institutions	Medicare as a percent of patient care revenue					Mean Medicare Percent a/	Medicare Dollars a/	
		0-20%	21-40%	41-60%	61-100%	Unk.		Total	Average
Total	643	26.6	52.9	6.2	1.2	13.1	25.34	2,685,600,000	4,804,293
No FMGs b/	106	21.7	50.0	7.5	.9	19.8	25.87	285,000,000	3,352,941
Below average FMGs	197	35.0	46.2	6.6	1.6	10.7	24.71	892,700,000	5,072,159
Above average FMGs	267	23.2	61.0	5.2	1.1	9.4	26.16	1,302,400,000	5,381,818
All FMGs b/	73	23.3	45.2	6.8	1.4	23.3	26.13	205,500,000	3,669,643

Source: Institute of Medicine National Survey Questionnaire.

a/Based on institutions where Medicare as a percent of patient care revenue was known.

b/Institutions with less than 0.5 percent foreign medical graduates were considered to have none; institutions with more than 99.5 percent foreign medical graduates were considered to be all foreign medical graduates.

TABLE 12. PERCENT DISTRIBUTION OF INSTITUTIONS BY PATIENT CARE REVENUES FROM MEDICAID AND FOREIGN MEDICAL GRADUATE CONCENTRATION IN INSTITUTIONS, 1975

Concentration	Number institutions	Medicaid as a percent of patient care revenue					Mean Medicaid Percent a/	Medicaid Dollars a/	
		0-20%	21-40%	41-60%	61-100%	Unk.		Total	Average
Total	643	69.2	10.6	4.4	2.2	13.7	13.45	1,330,300,000	2,296,937
No FMGS b/	106	65.1	6.6	3.8	2.8	21.7	12.54	113,400,000	1,336,265
Below average FMGs	197	72.1	11.2	3.6	2.5	10.7	13.92	501,800,000	2,851,136
Above average FMGs	267	72.7	11.6	4.5	1.5	9.7	12.71	629,300,000	2,611,203
All FMGs b/	73	54.8	11.0	6.8	2.7	24.7	16.55	85,800,000	1,560,000

Source: Institute of Medicine National Survey Questionnaire.

a/Based on institutions where Medicaid as a percent of patient care revenue was known.

b/Institutions with less than 0.5 percent foreign medical graduates were considered to have none; institutions with more than 99.5 percent foreign medical graduates were considered to be all foreign medical graduates.

For all programs, the two most frequently cited selection criteria were recommendations and personal interviews. For the programs with low concentrations of FMGs, however, the third most frequently cited criterion was position in medical school class; in programs with a high concentration of FMGs, the third factor was "ECFMG required for non-USMGs." Only 54 percent of the directors of high FMG programs listed position in medical school as a criterion for selection.

USMGs in the sample were more than four times as likely to have participated in the National Intern and Resident Matching Program (NIRMP) than FMGs. Although NIRMP reported that one-fourth of NIRMP applicants in 1975 were FMGs, only six percent of the Institute of Medicine sample NIRMP users were FMGs. For the USMGs and FMGs who did use NIRMP, the rate of placement in present position through NIRMP was almost identical--about two-thirds of the users. NIRMP reported in 1975 that 92.3 percent of North American graduates and 34 percent of FMGs were successfully matched. Program directors in all types of institutions tended to use NIRMP for USMGs and USFMGs more often than for FMGs. Program directors in institutions with high FMG concentrations tended to use NIRMP for their FMGs more often than other program directors.

SELECTION OF TRAINING POSITIONS

FMGs and USMGs were asked to rank certain factors according to importance in choosing a specialty. Although the patterns were similar, FMGs, more often than USMGs, ranked as most important the "need for more practicing physicians in specialty" and "availability of training positions in specialty" and less often ranked "a strong interest in the area of specialization," which may indicate that they tend to occupy residual slots (Table 13). There were no great differences in the responses of USMGs and FMGs by the concentration of FMGs in the training program.

The factors ranked as most important in the selection of a training institution were slightly different for FMGs and USMGs. The single most important factor for USMGs who responded was "reputation of the institution in the chosen specialty" which was cited by more than twice as many respondents as the next most frequently named factor, "general reputation of the institution." For FMGs, approximately the same percentage ranked one of these two factors as the most important, but more FMGs cited "general reputation of the institution" (45 percent to 40 percent). The geographic location of the institution was ranked as the most important factor by almost twice as many USMGs as FMGs. USMGs had similar response rates in all types of institutions, but for FMGs in institutions which were almost all FMG, more than a third of the respondents chose either geographic location or "presence in community or family members of friends from home geographic area" as the most important selection factor (Table 14).

TABLE 13. FACTORS RANKED AS MOST IMPORTANT IN CHOOSING SPECIALTY BY USMG AND FMG STATUS

	USMG	FMG a/
Strong interest in area of specialization	85.1	78.6
Influence of faculty member	3.0	3.8
Need for more practicing physicians in this specialty	2.2	5.1
Availability of training positions in this specialty	.6	2.8
Greater opportunities for research contribution	1.9	3.4
Influence of family member/friend in this specialty	1.4	2.5
Life style (e.g., regular hours)	4.5	3.9
Other	1.2	.3

Source: Institute of Medicine House Officer Activity Analysis.
a/Six respondents ranked more than one factor as most important.

TABLE 14. FACTORS RANKED AS MOST IMPORTANT IN CHOOSING A HOSPITAL OR SCHOOL BY USMG AND FMG STATUS

	USMG	FMG
General reputation of hospital or school	23.6	44.1
Reputation of hospital or school in chosen specialty	56.9	39.1
Presence in community of family members or friends from home geographic area	4.3	5.3
Geographic location of hospital or school	12.2	6.7
Salary and fringe benefits	.6	1.3
Other	2.0	1.6
No response	.4	1.9

Source: Institute of Medicine House Officer Activity Analysis.

Ninety-two percent of the USMGs were in the specialty of their first choice compared to 82 percent of the FMGs. Of FMGs in programs which were almost all FMG, the figure was only 69 percent. Seventy-six percent of the USMGs were in the hospital of their first choice, compared to 78 percent of the FMGs. Both USMGs and FMGs in institutions with a below-average concentration of FMGs were more likely to be in the hospital of their first choice than house staff in institutions of high FMG concentrations.

When FMGs were asked to indicate their specialty of first choice, the percentage selecting all hospital-based specialties was lower than the percentage actually serving in such specialties, and the percentage selecting ophthalmology and orthopedic surgery as the first choice was greater than the percentage serving in those specialties.

The data collected in the Institute of Medicine's field studies from program directors indicating a preference for USMGs, and from FMGs showing they were less likely to be in the specialty of first choice indicate that certain training opportunities may not be as readily available to FMGs and that such house officers may occupy residual training slots, and may compromise their first career choice. This may explain data from the same source which indicate that FMGs tend to switch residency training programs about twice as frequently as do USMGs.

* * *

FINDINGS

The trend apparent in the 1960s and early 1970s toward increased numbers of FMGs in residency positions now appears to be changing since there are more USMGs seeking training positions. Without further growth in training positions, by the mid-1980s almost all graduate medical education positions could be filled by USMGs. Since most medical licensing jurisdictions in the United States require completion of at least one year of approved postgraduate training, a reduction in the numbers of positions available for FMGs will reduce the number of FMGs who can enter the United States medical care system as fully licensed physicians.

FMGs are not distributed evenly among specialties, institutions, or geographic areas. Attention must be given to the effect that changes in the numbers of FMGs entering the United States will have on institutions and the implications this has for patient care.

Although Medicare and Medicaid support is slightly higher in institutions with higher concentrations of FMGs, the difference is not statistically significant.

House officer activity data do not show great differences in the professional activities of house staff between USMGs and FMGs or in programs of varying concentrations of FMGs.

The data collected from program directors which indicate that United States medical graduates are preferred, and data from house officers which show that FMGs tend to be in the specialty of first choice less often than USMGs, and that FMGs slightly more often cite "availability of training positions in specialty" as a factor for specialty choice indicate that to a certain extent foreign medical graduates tend to occupy residual or less desirable training positions.

REFERENCES

Chapter 11

[1] U.S. Department of Justice, *1974 Annual Report: Immigration and Naturalization Service* (Washington, D.C.: Government Printing Office, 1974), pp. 39 and 65.

[2] U.S. Department of Health, Education, and Welfare, National Institutes of Health, *Foreign Trained Physicians and American Medicine* by Rosemary Stevens and Joan Vermeulen, No. (NIH) 73-325 (June 1972), p. 65.

[3] DHEW, Health Resources Administration, *Foreign Medical Graduates and Physician Manpower in the United States* by Betty H. Lockett and Kathleen N. Williams, No. (HRA) 73-30 (February 1974), p. 20.

[4] Stevens and Vermeulen, p. 55.

[5] Lockett and Williams, p. 14.

[6] Rosemary Stevens et al., "Physician Migration Reexamined," *Science* 190 (October 31, 1975): 439-42.

[7] *Directory of Approved Internships and Residencies, 1974-75* (Chicago: American Medical Association, 1975), p. 21.

[8] "Graduate Medical Education," *Journal of the American Medical Association*, 234 No. 13 (December 29, 1975): 1355.

[9] U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, Bureau of Health Resources Development, "A Clinical View of the Foreign Medical Graduate," a position paper prepared by John Gordon Freyman, February 1975.

10 Lockett and Williams, p. 16.

11 Irene Butter et al., State Policies on Limited and Temporary Licensure for Foreign Medical Graduates (Ann Arbor, Michigan, July 1975), pp. I-58-59.

12 Robert J. Weiss et al., "Foreign Medical Graduates and the Medical Underground," New England Journal of Medicine, 290 No. 25 (June 20, 1974): 1408-13.

13 U.S. Senate, Committee on Labor and Public Welfare, Subcommittee on Health, Hearings on Health Manpower Legislation, Statement of the American Medical Association, November 18, 1975.

14 Directory of Approved Internships and Residencies 1974-75, p. 16.

15 Ibid., p. 10.

16 "Graduate Medical Education," JAMA, p. 1358.

17 Beverly C. Martin, Medical School Alumni: Professional Characteristics of U.S. Physicians by Medical School and Year of Graduation (Rockville, Md.: Aspen Systems Corporation, 1975), p. 23.

18 Rosemary Stevens, Science, pp. 439-42.

19 John S. Graettinger, "Graduate Medical Education Viewed from the National Intern and Resident Matching Program" (unpublished paper, December 1975).

GLOSSARY

The definitions in quotations are taken from A Discursive Dictionary of Health Care prepared by the staff of the Subcommittee on Health and the Environment of the Committee on Interstate and Foreign Commerce, U.S. House of Representatives, February 1976.

CARE, AMBULATORY. "All types of health services which are provided on an outpatient basis, in contrast to services provided in the home or to persons who are inpatients. While many inpatients may be ambulatory, the term ambulatory care usually implies that the patient has come to a location other than his home to receive services and has departed the same day."

CARE, EMERGENCY. "Care for patients with severe, life-threatening, or potentially disabling conditions that require intervention within minutes or hours."

CARE, PRIMARY. Medical care delivery which emphasizes first contact care and assumes ongoing responsibility for the patient in total health maintenance and therapy of illness. "It is comprehensive in the sense that it takes responsibility for the overall coordination of the care of the patient's health problems, be they biological, behavioral, or social."

CARE, SECONDARY. "Services provided by medical specialists who generally do not have first contact with patients (e.g., cardiologists, urologists, dermatologists). In the United States, however, there has been a trend toward self-referral by patients themselves for these services, rather than referral by primary care providers."

CARE, TERTIARY. "Services provided by highly specialized providers (e.g., neurologists, neurosurgeons, thoracic surgeons, intensive care units). Such services frequently require highly sophisticated technological and support facilities."

CARRIERS. "A commercial health insurer, a government agency, or a Blue Cross or Blue Shield plan which underwrites or administers programs that pay for health services. Under the Medicare Part B (Supplemental Medical Insurance) Program ... carriers are agencies and organizations with which the program contracts for administration of various functions, including payment of claims."

CHARGES, CUSTOMARY. "Generally, the amount which a physician normally or usually charges the majority of his patients. Under Medicare, it is the median charge used by a particular physician for a specified type of service during the calendar year preceding the fiscal year in which a claim is processed."

CHARGES, PREVAILING. "A charge which falls within the range of charges most frequently used in a locality for a particular medical service or procedure. The top of this charge establishes an overall limitation on the charges which a carrier ... will accept as resonable for a given service ... Current Medicare rules state that the limit of an area's prevailing charge is to be the 75th percentile of the customary charges for a given service by the physicians in a given area."

CHARGES, REASONABLE. "For any specific service covered under Medicare, the lower of the customary charge by a particular physician for that service and the prevailing charge by physicians in the geographic area for that service. Reimbursement is based on the lower of the reasonable and actual charges ... Generally, the term is used for any charge payable by an insurance program which is determined in a similar, but not necessarily identical fashion."

COINSURANCE. "A cost-sharing requirement under a health insurance policy which provides that the insured will assume a portion or percentage of the costs of covered services. The health insurance policy provides that the insurer will reimburse a specified percentage (usually 80 percent) of all, or certain specified covered medical expenses in excess of any deductible amounts payable by the insured. The insured is then liable for the remaining percentage of the costs, until the maximum amount payable under the insurance policy, if any, is reached."

COORDINATING COUNCIL ON MEDICAL EDUCATION (CCME). "A supervisory body established in 1972 to coordinate policy matters and accreditation at all levels of medical education. Among its organizational members are the AMA, the American Board of Medical Specialities, the AAMC, the AHA, and the Council of Medical Specialty Societies. It also has public and federal members."

COST, REASONABLE. "Generally, the amount which a third party using cost-related reimbursement will actually reimburse. Under Medicare reasonable costs are costs actually incurred in delivering health services excluding any part of such incurred costs found to be unnecessary for the efficient delivery of needed health services (see Section 1861 of the Social Security Act)."

DEDUCTIBLE. "The amount of loss or expense that must be incurred by an insured or otherwise covered individual before an insurer will assume any liability for all or part of the remaining cost of covered services Deductibles may be either fixed dollar amounts or the value of specified services (such as two days of hospital care or one physician visit). Deductibles are usually tied to some reference period over which they must be incurred, e.g., $100 per calendar year, benefit period, or spell of illness."

EDUCATIONAL COMMISSION FOR FOREIGN MEDICAL GRADUATES (ECFMG). "An organization sponsored by the AMA, AHA, AAMC, Association for Hospital Medical Education, and Federation of State Medical Boards of the U.S. which operates a program of educating, testing and evaluating foreign medical graduates who seek internships and residencies in the U.S. The ECFMG was formed in 1974 by merger of the Educational Council for Foreign Medical Graduates, incorporated in 1956, and the Commission for Foreign Medical Graduates. Certification of FMGs is granted by the ECFMG after receiving documentation of their education, and passage of an examination of their medical competence and comprehension of spoken English. Such certification is necessary for full licensure of FMGs in 47 states and territories."

ENCOUNTER. "A contact between a patient and health professional in which care is given. Some definitions exclude either telephone contacts or home visits."

FEDERATION LICENSING EXAMINATION (FLEX). "A standardized licensure test for physicians developed by the Federation of State Medical Boards of the U.S. for potential use on a nationwide basis. In fact, some 48 states now use the FLEX as their test for licensure, although they vary in the score required for licensure. The FLEX exam is based on test material developed by the National Board of Medical Examiners."

FEE SCREEN. A term used by the Social Security Administration to describe the customary, prevailing, and reasonable charge amounts established for physician services by the carrier at the beginning of each fiscal year. It implies that charges (or fees) in excess of these computed rates are "screened out" thus providing payment to the physician by the carrier at a level lower than the actual charge. As a general term, fee screens is used synonymously with "prevailing charges" or "prevailings."

FELLOW (MID OR POST RESIDENCY). A graduate of a medical, osteopathic, or dental school who has had an advanced period of graduate training and is in a fellowship program in a subspecialty or in a clinical research program.

FOREIGN MEDICAL GRADUATE. (see Medical Graduate, Foreign)

GRADUATE TRAINING PROGRAM, BI-LATERAL. Program conducted in a medical school department and a teaching hospital service (or the same clinical services in two hospitals where there is no medical school involvement).

GRADUATE TRAINING PROGRAM, INDEPENDENT. Operates with no relationship to a medical school for graduate training. The hospital administration and medical staff determine the number of house officers to be trained, select the candidates, and supervise the training programs.

GRADUATE TRAINING PROGRAM, INTEGRATED. Program stems from medical school academic department with department chairman playing an integral role in the determination of the number of house staff in the clinical services in two or more hospitals. Residents rotate from hospital to hospital. The hospital may pay the house officer salaries directly or they may pay the salary amounts into a central fund (usually administered by a medical school department or a nonprofit organization).

HOUSE OFFICER (HOUSE STAFF). A medical, osteopathic, or dental school graduate who is an intern, resident, or fellow in a program of clinical training, service, and research.

INTERMEDIARY. "A public or private agency or organization selected by providers of health care which enters into an agreement with the Secretary of HEW under the Hospital Insurance Program (Part A) of Medicare, to pay claims and perform other functions for the Secretary with respect to such providers. Usually, but not necessarily, a Blue Cross plan or private insurance company."

INTERN. A graduate of a medical, osteopathic or dental school serving a first year period of graduate clinical training.

LIAISON COMMITTEE ON MEDICAL EDUCATION (LCME). "A joint committee of the American Medical Association and the Association of American Medical Colleges responsible for accrediting medical schools. Established in 1942 ...the committee is made up of six representatives of the AMA Council on Medical Education, six representatives of the AAMC Executive Council, two representatives of the public, and one representative of the Federal government."

LICENSURE, LIMITED. Physician licensure that restricts practice to a specific institution (such as a mental hospital) designated by the state. Holders of these licenses are often FMGs.

MEDICAL GRADUATE, FOREIGN (FMG). A graduate of a medical school outside the United States, Puerto Rico, or Canada who was not a U.S. or Canadian citizen at the time of graduation.

MEDICAL GRADUATE, UNITED STATES FOREIGN (USFMG). A graduate of a medical school outside the United States, Puerto Rico, or Canada who was a U.S. citizen at the time of graduation.

MEDICAL GRADUATE, UNITED STATES (USMG). Any graduate of U.S., Puerto Rican, or Canadian medical school irrespective of citizenship.

MEDICAL SERVICE PLAN. An organization for the billing, collection, distribution and/or use of all specifically identified portions of the professional fees covered by participating physicians.

PAYMENT, COST-BASED. "One method of payment of medical care programs by third parties, typically Blue Cross plans or government agencies, for services delivered to patients. In cost-related systems, the amount of payment is based on the costs to the provider of delivering the service. The actual payment may be based on any one of several different formulae, such as full cost, full cost plus an additional percentage, allowable costs, or a fraction of costs." Under Medicare, Part A services--including those provided by interns and residents in approved training programs--are reimbursed on a cost basis. Also reimbursable to the hospital under Part A are the teaching, administrative, and supervising activities of physicians not in training.

PAYMENT, FEE-FOR-SERVICE. Payment of a fee to a physician for the performance of a specific service or procedure to a patient.

PAYMENT, LUMP SUM. Payment for professional patient care services based on a negotiated agreement between the payor and individual physicians, physician groups, or institutions. The agreement establishes the services to be provided, the amount of payment, who will provide the services, and describes the client group without necessarily specifying the population of the group or the services to be provided its members. This payment method is used by the Maternal and Child Health Program (Title V) and by many state and local governments to provide physician services to specified client groups.

PAYMENT, UNIFIED. Payment for services of teaching physicians and house officers in cases where the latter are employees of a physician organization rather than a hospital. As recognized by Medicare in a modified form, payment is made wholly from Part B (The Supplemental Medical Insurance Program) rather than from both Part A (The Hospital Insurance Program) for cost reimbursement of house officer salaries and Part B for direct patient care services of physician.

PATIENT DAYS. "A measure of institutional use, usually measured as the number of inpatients at a specified time (e.g., midnight)."

PHYSICIAN, ATTENDING. "The physician legally responsible for the care given a patient in a hospital or other health program. Usually the private physician of a private patient who is also responsible for the patient's outpatient care." An attending physicians can be assigned to a patient if the patient does not have his own physician when admitted to the hospital.

PHYSICIAN, CONTACT. General and family practitioners, general internists, and general pediatricians who make up the majority of physicians of first contact in the medical care system. Other physicians also engage in primary care.

PHYSICIAN, HOSPITAL BASED. "A physician who spends the predominant part of his practice time within one or more hospitals instead of in an office setting, or providing services to one or more hospitals or their patients. Such physicians sometimes have a special financial arrangement with the hospital (salary or percentage of fees collected), and include directors of medical education, pathologists, anesthesiologists, and radiologists as well as physicians who staff emergency rooms and outpatient departments."

PHYSICIAN, TEACHING. Any fully-trained physician (M.D., D.O., or Oral Surgeon D.D.S.) not enrolled in a graduate training program who is responsible for or directly engaged in any patient care activities performed by a physician; and is responsible for the instruction, supervision, or both of interns, residents, or fellows.

PRACTICE PLAN. (See Medical Service Plan.)

PROVIDERS OF SERVICE. "An individual or institution which gives medical care. In Medicare, an institutional provider is a hospital, skilled nursing facility, home health agency, or certain providers of outpatient physical theraphy services. These providers receive cost-related reimbursement."

RESIDENT. A graduate of a medical, osteopathic, or dental school serving an advanced period of graduate training. (This may represent the first year of graduate training or any year thereafter.)

SLOT. Position in a graduate medical education program.

TEACHING HOSPITAL. A hospital in which there are AMA, ADA, or AOA approved programs of physician education for medical students and/or interns and residents. Institutions having only programs of continuing education for practicing physicians are not generally regarded as teaching hospitals.

TEACHING HOSPITAL, GRADUATE ASSOCIATED. Teaching hospitals that have one or more training programs directed by medical school clinical departments, and may also have training programs independent of the medical school.

TEACHING HOSPITALS, INDEPENDENT. Teaching hospitals that conduct only their own graduate and undergraduate medical education programs.

TEACHING HOSPITAL, PRINCIPAL. Teaching hospitals in which medical school clinical departments direct all aspects of graduate training programs.

TEACHING HOSPITAL, UNDERGRADUATE ASSOCIATED. Teaching hospitals that have a tie to a school for undergraduate clinical training, and conduct their own independent graduate medical education program.

TEST, PATIENT LIABILITY. Proposed guidelines which describe the obligations and extent of financial participation of patients in paying for physician services in a teaching setting.

TEST, PHYSICIAN ROLE. Guidelines which establish criteria for the payment of physicians on a fee-for-service basis in a teaching setting.

THIRD-PARTY PAYOR. "Any organization, public or private, that pays or insures health or medical expenses on behalf of beneficiaries or recipients (e.g. Blue Cross and Shield, commercial insurance companies, Medicare, and Medicaid). The individual generally pays a premium for such coverage in all private and some public programs. The organization then pays bills on his behalf; such payments are called third party payments and are distinguished by the separation between the individual receiving the service (the first party), the individual or institution providing it (the second party) and the organization paying for it (the third party)."

TRAINING PROGRAM, APPROVED. Any graduate physician training program for interns and/or residents which is approved by the Liaison Committee on Graduate Medical Education, the Committee of Post Doctoral Education of the American Osteopathic Association, or the Council on Dental Education of the American Dental Association.

TRAINING PROGRAM, NON-APPROVED. A graduate physician training program that has not received or has not sought approval from the Liaison Committee of Post Doctoral Education of the American Osteopathic Association, or the Council on Dental Education of the American Dental Association.

INSTITUTE OF MEDICINE

Social Security Studies

ADVISORY COMMITTEE - TEACHING HOSPITALS

Philip ADLER, D.O., Medical Director/Director of Medical Education, Zieger Osteopathic Hospital/Botsford General Hospital, Farmington, Michigan

Jack R. ARON, Chairman, Board of Tulane Medical Center, New York, New York

Robert L. EVANS, M.D., Sloan Fellow, Alfred P. Sloan School of Management, Massachusetts Institute of Technology, Cambridge, Massachusetts

Bernard P. HARRISON, J.D., Director, Division of Medical Practice, American Medical Association, Chicago, Illinois

John W. KIRKLIN, M.D., Professor and Chairman, Department of Surgery, The Medical Center, University of Alabama in Birmingham, Alabama

Richard M. KNAPP, Ph.D., Director, Department of Teaching Hospitals, Association of American Medical Colleges, Washington, D.C.

Richard H. MALONE, Associate Executive Director, Baylor University Medical Center, Dallas, Texas

Lawrence E. MARTIN, Associate General Director, Massachusetts General Hospital, Boston, Massachusetts

John H. MATHER, M.D., currently Chief, Professional Education and Development Branch, Division of Medicine, Bureau of Health Manpower, Health Resources Administration, Department of Health, Education, and Welfare, Bethesda, Maryland (resigned July 8, 1975)

Howard N. NEWMAN, President, Dartmouth-Hitchcock Medical Center, Hanover, New Hampshire

Richard E. PALMER, M.D., Pathologist, Palmer-Parkinson Pathology Associates, Alexandria, Virginia; President-elect, American Medical Association

Arnold S. RELMAN, M.D., Chief of Medical Services, Chairman, Department of Medicine, Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania

William O. RIEKE, M.D., President, Pacific Lutheran University, Takoma, Washington

Cecil G. SHEPS, M.D., Vice Chancellor, Health Sciences, The University of North Carolina at Chapel Hill, North Carolina

Richard E. SHOEMAKER, Assistant Director, Department of Social Security, American Federation of Labor and Congress of Industrial Organizations, Washington, D.C.

Andrew C. von ESCHENBACH, M.D., Instructor, Department of Urology, Pennsylvania Hospital, Philadelphia, Pennsylvania

INSTITUTE OF MEDICINE

Social Security Studies

ADVISORY COMMITTEE - SPECIALTY AND GEOGRAPHIC DISTRIBUTION OF PHYSICIANS

D. Kay CLAWSON, M.D., Dean, College of Medicine, University of Kentucky, Lexington, Kentucky

F.E. DREIFUSS, M.B., Professor and Vice Chairman, Department of Neurology, University of Virginia Medical Center, Charlottesville, Virginia

Ronald G. EVENS, M.D., Elizabeth Mallinckrodt Professor and Head, Department of Radiology, Washington University School of Medicine, St. Louis, Missouri

Ellen T. FAHY, Ed.D., Dean, School of Nursing, Health Sciences Center, State University of New York at Stony Brook, New York

Saul J. FARBER, M.D., The Nathan Friedman Professor and Chairman, Department of Medicine, New York University Medical Center, New York, New York

Robert GRAHAM, M.D., former Assistant Director, Division of Education, American Academy of Family Physicians, Kansas City, Missouri, currently Program for Health Sciences Management, Baylor College of Medicine, Houston, Texas

William D. HOLDEN, M.D., Oliver H. Payne Professor of Surgery and Director, Department of Surgery, Case Western Reserve University School of Medicine, Cleveland, Ohio

Calista HUGHES, Former Director, State Office of Comprehensive Health Planning, Humboldt, Nebraska

Daniel K. LOWE, M.D., Former President, Indiana University Housestaff Association and Resident in Surgery, Department of Surgery, Indiana University School of Medicine, Indianapolis, Indiana

Myron S. MAGEN, D.O., Dean, College of Osteopathic Medicine, Michigan State University, East Lansing, Michigan

Francis D. MOORE, M.D., Moseley Professor of Surgery, Harvard Medical School, Boston, Massachusetts

Beverlee A. MYERS, Deputy Commissioner, Medical Assistance, New York State Department of Social Services, Albany, New York

Social Security Studies
Advisory Committee - Specialty and Geographic Distribution of Physicians
(Continued)

Kenneth J. RYAN, M.D., Chief of Staff, Boston Hospital for Women, Kate Macy Ladd Professor of Obstetrics and Gynecology, Harvard Medical School, Boston, Massachusetts

Richard O. SCHULTZ, M.D., Professor and Chairman, Department of Ophthalmology, Medical College of Wisconsin, Milwaukee, Wisconsin

E.S. SIKER, M.D., Chairman, Department of Anesthesiology, Mercy Hospital, Pittsburgh, Pennsylvania

Martin H. SMITH, M.D., Chairman, Council on Pediatric Practice, American Academy of Pediatrics, Gainesville, Georgia

Ruth P. ZAGER, M.D., Clinical Associate Professor of Pediatrics and Psychiatry, Jefferson Medical College of Thomas Jefferson University, Philadelphia, Pennsylvania

DATE DUE

HIGHSMITH 45-220

CMS Library
C2-07-13
7500 Security Blvd.
Baltimore, Maryland 21244

INSTITUTE OF MEDICINE

Social Security Studies

ADVISORY COMMITTEE - FOREIGN MEDICAL GRADUATES

Angelo P. ANGELIDES, M.D., former Director, Division of Special Programs, Educational Commission for Foreign Medical Graduates, Philadelphia, Pennsylvania, currently Senior Vice President for Medical Affairs, Cooper Medical Center, Camden, New Jersey

Mildred Mitchell-BATEMAN, M.D., Director, West Virginia Department of Mental Health, Charleston, West Virginia

Louis W. BURGHER, M.D., Medical Director, Respiratory Therapy Department, Bishop Clarkson Memorial Hospital, Omaha, Nebraska

Kenneth R. CRISPELL, M.D., Vice President for Health Sciences, University of Virginia, Charlottesville, Virginia

Richard L. EGAN, M.D., Assistant Director, Department of Undergraduate Medical Education, American Medical Association, Chicago, Illinois

Abdol H. ISLAMI, M.D., Attending Surgeon and Director, Department of Graduate Medical Education, Saint Barnabas Medical Center, Livingston, New Jersey

Edithe J. LEVIT, M.D., Vice President and Secretary, National Board of Medical Examiners, Philadelphia, Pennsylvania

Carel E. H. MULDER, Consultant, Health Care and Welfare Administration, Sacramento, California

Fred SELIGMAN, M.D., M.P.H., Associate Professor of Pediatrics and Psychiatry, Director, Division of Comprehensive Health Care, Department of Pediatrics, University of Miami School of Medicine, Miami, Florida

Yvan J. SILVA, M.D., Director of Medical Education, Detroit General Hospital, Associate Professor of Surgery, Wayne State University, Detroit, Michigan

William A. SODEMAN, Sr., M.D., Clinical Professor of Medicine, Medical College of Ohio at Toledo, Ohio

Emanuel SUTER, M.D., Director, Division of International Medical Education, Association of American Medical Colleges, Washington, D.C.

CMS LIBRARY
3 8095 00006371 5

Social Security Studies
Advisory Committee - Foreign Medical Graduates
(Continued)

Kishore J. THAMPY, M.D., Psychiatry, Physicians National House Staff Association, Chicago, Illinois

Robert J. WEISS, M.D., Director, Center for Community Health Systems, Columbia University, New York, New York

○

R 728.5 .I57 1976
Institute of Medicine (U.S.)
Medicare-Medicaid reimbursement policies :